OPENLang Network's Pedagogical & Design Framework

Technical Report · December 2021

DOI: 10.13140/RG.2.2.22181.58081

CITATION
1

READS
5

2 authors:

Maria Perifanou
University of Macedonia (UOM)_GR and Aristotle University of Thessaloniki (AUTH…
57 PUBLICATIONS **167** CITATIONS
SEE PROFILE

Anastasios A. Economides
University of Macedonia
347 PUBLICATIONS **5,299** CITATIONS
SEE PROFILE

Open European Languages & Cultures Network

IO2. Research report: OPENLang Network's Pedagogical & Design Framework

---

May 2020 (Version 1)
December 2021 (Version 2)

Erasmus+

Grant Agreement 2018-1-EL01-KA203-047967

Authors: Dr. Maria Perifanou (UOM, GR), Prof. Anastasios A. Economides (UOM, GR)

Project Consortium:

The University of Macedonia, GR

The Open University, UK

The Cyprus University of Technology, CY

Pixel (IT)

Contact Information

Website: https://www.openlangnet.eu/
E-mail: mariaperif@gmail.com, panayiotis.kosmas@cut.ac.cy

This project is funded by Erasmus+ KA2 grant Agreement No 2018-1-EL01-KA203-047967.

Co-funded by the Erasmus+ Programme of the European Union

Abstract

According to both the Council of Europe and the European Union mobility is one of the cornerstones of European society. The lack of language competences is still one of the main barriers to participation in European education, training and youth programmes. With 4 million participants by 2020, Erasmus+ is a unique opportunity to study, train, gain work experience or volunteer abroad (EU, 2013). As languages are the heart of mutual understanding and comprehension, it is essential to promote language learning for Erasmus+ KA1 mobility participants.

The OPENLang Network project addresses the needs for linguistic skills and culture awareness of Erasmus+ KA1 mobility participants and the training needs for OERs of language teachers:
a) Erasmus+ KA1 mobility participants (HE students & staff, VET, Adult & School education staff, Youth learners, Youth Workers, Youth Entrepreneurs) that need to boost their language skills (24 EU) and cultural awareness including those who will not enroll in the OLS courses.
b) Volunteers language teachers who will support the Erasmus+ KA1 mobility participants offering their professional experience while receiving professional certified training on the creation, sharing and use of language OERs.

- The OPENLang Network project envisages to:
1) connect these 2 groups in an interactive collaborative environment (Web-based and mobile-based) that will support more efficiently their effort to raise language awareness of the target mobility of EU languages and to develop European intercultural knowledge covering all EU cultures.
2) foster the Open Education European multicultural and multilingual vision to all OPENLang Network members.

The research report on OPENLang Network's Pedagogical & Design Framework is the second intellectual output envisaged by the OPENLang Network project. This research report consists of three main sections: The first section begins with a short analysis of the Pedagogical Challenges that teachers face in Online Language Learning and Teaching Practice and, then, it presents an overview of the Pedagogical Theories,

Models and Methods that are adopted in Online Learning and Teaching Practice (Distance and E-Learning). The second section begins with an overview of existing pedagogical models applied in Online Language Learning and Teaching Practice, it continues with the presentation of the existing challenges in designing online language courses: theories, frameworks and models and, finally, it concludes with the Development of the OPENLang Network's Pedagogical Framework. The last section presents analytically the pedagogical philosophy behind the development of the OPENLang Network's design framework as well as the main goals, objectives, content and services of the OPENLang language learning platform. This report aims to bring light to a research area that is still in progress providing directions for future research.

Please cite this report as:

Maria Perifanou, and Anastasios Economides (2020). *"Research report: OPENLang Network's Pedagogical & Design Framework"*. Research Report. OPENLang Network, Erasmus+ project. May 2020.

Erasmus+

Contents

O2-T1. Overview of existing pedagogical models applied in Online Language Learning and Teaching Practice

2.1.1 Online Language Learning and Teaching Practice: Pedagogical Challenges

Teaching languages online in the era of globalisation and digitalisation is a great challenge. There is a growing number of opportunities for teachers – and students- of learning and teaching languages online such as access to a big variety of online teaching and communication tools, authentic and updated Open Educational Resources (OERs) of different formats, easy access to communication with native speakers, etc.

But how easy is it to transfer the Language Learning and Teaching Practice online? The answer is that this is not an easy process. Many practitioners (i.e. Bennett & Marsh, 2002; Barker, 2002; Wilson & Stacey, 2004; Hampel & Stickler, 2005; Davis & Rose, 2007; Compton, 2009) in the field of online language teaching have analysed the big differences between teaching in a traditional classroom and teaching online. More specifically, Bennett & Marsh (2002) argue that "teaching language online requires more than just the knowledge of which buttons to press in order to send an email or which HTML coding is required to insert an image on a web page". It requires:
(a) to 'identify the significant differences and similarities between face-to-face and online learning and teaching contexts, and
(b) to 'identify strategies and techniques to facilitate online learning and help students exploit the advantages in relation to both independent and collaborative learning' (p. 14,16).

According to Hampel & Stickler (2005), "teaching language online requires skills that are different from those used to teach language in face-to-face classrooms. It is also different from teaching other subjects online". They also underline the important role of authentic communication saying that "meaningful communicative interaction would hardly take place in a classroom without social cohesion and would certainly not provide successful practice opportunities for communicative encounters". In order to reflect the particular set of skills needed by language teachers when they teach

online they propose the "Skill pyramid framework" (Hampel & Stickler, 2005). This framework depicts the seven key competences necessary for successful online language teaching. More concretely, this framework adopts a pyramid model which shows how the skills are built on each other proposing a broad base of general skills like ICT basic skills, technical knowledge and the pedagogic use of technology, continuing with the skills for facilitation of the online socialisation and the communicative competence, leading to an apex of teacher's creativity and personal teaching style (Fig.1). What is important to take under consideration is that since technology continuously changes, training on fostering new ICT skills should be continuous. When teachers are able to understand in practice the technical use of technology, they can reflect better on its pedagogical use and adapt it in various creative ways in their teaching practice. Nonetheless, skills which promote social cohesion are also essential because this is a necessary element for meaningful communicative interaction. However, language teachers have to take this process one step further by facilitating parallel learners' language acquisition. The socio-constructivist approach is widely recommended in the field of Computer Assisted Language Learning (CALL) (Felix, 2002; Felix, 2005; Johnson, 2006; Kern et al., 2004).

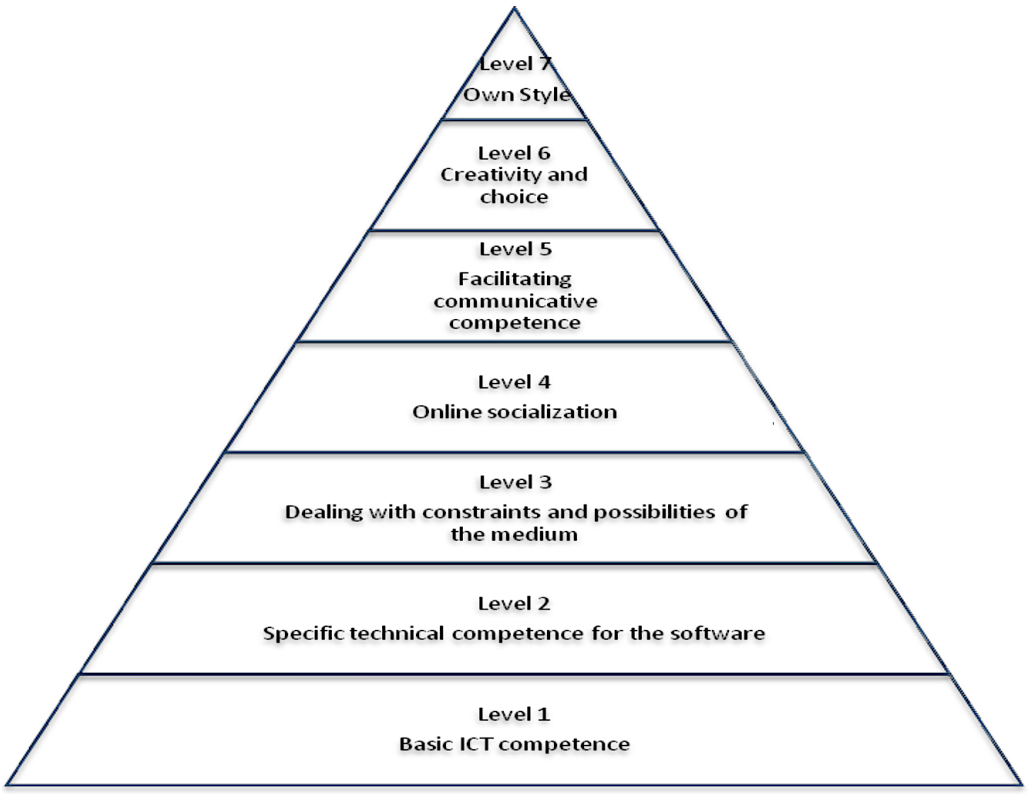

Figure 1. Skill pyramid (Hampel & Stickler, 2005, p. 317)

Similarly, to Hampel & Stickler's framework, Compton's Framework for Online Language Teaching Skills (Compton, 2009) proposes a set of new skills that language teachers should acquire in order to teach effectively in an online environment. In this case, the framework consists of three columns – technology, pedagogy and evaluation, and identifies three different competence levels (novice, proficient and expert) (Fig. 2). According to Compton's framework, online language teachers need to acquire skills beyond technological competence which include a good pedagogical background knowledge of the theories and strategies for online language learning and online assessment, but also knowledge of online curriculum design. She also proposes basic strategies to facilitate communicative competence and support online interaction. In this framework, it is also clear that continuous training is needed if language teachers want to keep up with the new technological and pedagogical advances and to even reach the expert's level.

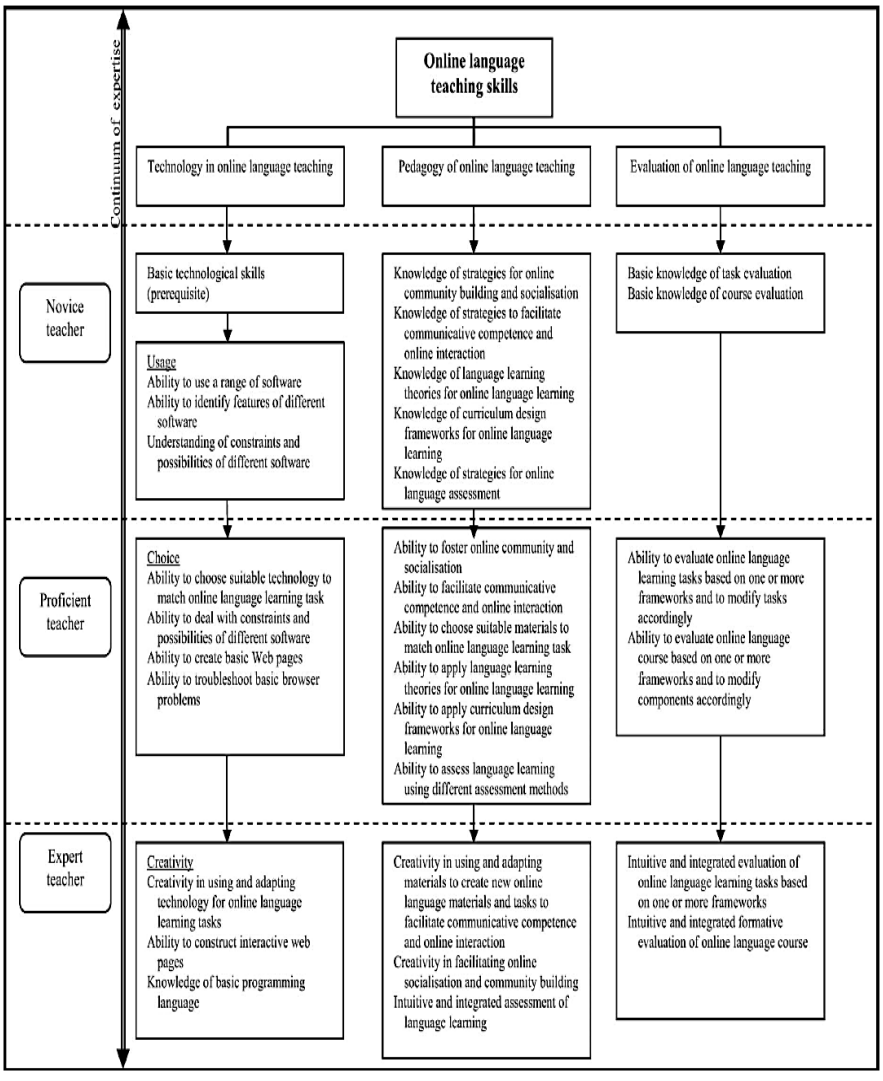

Figure 2. Compton's Framework for online teaching skills (Compton, 2009)

According to Kessler (2006), most teacher training programmes focus on digital literacy or software specific orientation. However, these skills help teachers to use technology but do not prepare them to use technology for language teaching. In accordance with Compton's framework, Hubbard and Levy (2006, p.10) argue that both technical and pedagogical knowledge and skills are crucial for CALL and they present them in the following Table 1.

	Technical	**Pedagogical**
CALL	Systematic and incidental understanding	Systematic and incidental
Knowledge	of the computer system, including peripheral devices, in terms of hardware, software and networking.	understanding of effectively using the computer in language teaching.
CALL Skill	Ability to use technical knowledge and experience both for the operation of the computer system and relevant applications and in dealing with various problems.	Ability to use knowledge and experience to determine effective materials, content and tasks, and to monitor and assess results appropriately.

Source: Hubbard and Levy (2006b, p. 16).

Table 1. Technical and pedagogical knowledge and skills for CALL (Hubbard & Levy, 2006, p.16)

Many researchers from the field discuss the need for new pedagogical approaches and not a simple adaptation of new tools to teachers' traditional teaching style. They argue that language teachers need to acquire a set of new skills in order to use the pedagogical affordances of the tools (Cutrim Schmid & Whyte, 2012; Wang, 2014). Whyte (2014) specifically proposes: a) teachers need to acquire a range of basic techno-pedagogical skills, b) attention must be paid to teachers' knowledge of and attitudes to second language learning and teaching, and c) technology integration in the language classroom requires long-term support to develop effective teaching practices.

Based on the literature it is obvious that the role of language teachers has dramatically changed and it is really demanding. New sets of skills are needed and new pedagogies are emerging in order to make best use of all the innovative technologies. Wang & Chen (2009) well describe that "language learning is a skill-based process rather than a content-based one. Skill developments, such as the acquisition of speaking and listening skills, required constant synchronous interaction in the target language". Wang & Chen (2009), emphasised the importance of adopting student-centered pedagogical approaches which enhance language learners' participation and interaction whether it is face-to-face, blended or fully online teaching. Language teachers firmly believe in that, knowing that a large part of language learning takes place among peer interaction. They emphasised that synchronous oral and visual interaction is a crucial component in online language learning and fostering real-time synchronous interaction is an important principle in distance language teaching. Taking into consideration that language learner's frequent interaction is an important factor, it makes sense why research in the field focuses on exploring how to integrate new tools in language classrooms in order to creatively promote active and communicative language learning. Baumann et al. (2008) identified the most important teachers' skill to be the design of tutorial activities where student involvement predominates (under group support and management). Similarly, Chapelle & Hegelheimer (2004) stressed the need for language teachers to "(a) know how to use communication tools such as chat rooms, bulletin boards, e-mail, and electronic mailing lists and (b) support the learners' communicative competence through computer-mediated technologies in the area of language learning". More researchers (Jones & Youngs, 2006; Hampel & Stickler, 2005; McLoughlin & Oliver, 1999) have emphasised the importance of promoting community building skills for language teachers because they believe that those skills encourage "socialisation, active participation and collaboration which are equally important for online teaching".

It is clear from this discussion that the language teachers' role has become really challenging and demanding at the same time. Synchronous online teaching requires a language teacher to learn to coordinate a set of complex operations in order to enable learning through communication via audio-conferencing (Lamy & Hampel, 2007) or video conferencing platforms (Wang, 2004). Language teachers need also to learn how to coordinate their pedagogical action between the different means available to them (voice, facial expressions, gestures, images, text) along with the different tools (webcam window, textual chat), and make appropriate and timely choices (Guichon, 2010). Davis and Rose (2007) present the necessary skills for online language teaching explaining that language teachers need to understand how and when to provide

student support, how and when to provide opportunities for interaction, the appropriate selection and use of resources, and the development of resources to serve specific instructional purposes. Apart from the need for promoting interaction in language teaching, finding interesting and authentic material that could support the language learning process is also crucial. According to Chapelle & Hegelheimer (2004), "searching, evaluating and repurposing of materials are important web literacy skills that all twenty-first century teachers should have since the world wide web provides such a wide range of resources for teaching". Hampel and Stickler (2005) also underlined that another important skill that language teachers should acquire is the ability to select good, authentic language learning materials and online tools that they should use with creativity when they design online activities "with the communicative principles in mind" in order to promote active and communicative language learning.

More recent research (Sun, 2011; Whyte, 2014; Perifanou, 2015) shows that there is need for a new pedagogy, a radical pedagogical shift in online language teaching from teacher-centred approaches towards a personalised, small-group orientated, multi-dimensional model of teaching (multi-level interactions amongst its members: one to-one, one-to-many, many-to-many) where language teachers could reorganize the online language learning making use of social networks and the technical affordances of online platforms that provide opportunities for online language learning at large scales, known as Massive Open Online Courses (MOOCs).

2.1.2 Online Learning and Teaching Practice (Distance and E-Learning): Pedagogical Theories, Models and Methods

2.1.2.1 Learning Theories in an e-learning context

According to Bednar, Cunningham, Duffy, and Perry (1991), it is highly important to link theory to practice in the design and development of any instructional system and "... effective design is possible only if the developer has a reflexive awareness of the theoretical basis underlying the design" (p. 90). Having this in mind, we have tried to explore the theoretical background of known pedagogical models for e-learning and online language learning and teaching practice, and based on the findings to design the OPENLang Network Pedagogical & Design model.

In our research we include research findings from both distance education and elearning even though distance education and e-learning constitute two distinct phenomena (Guri-Rosenblit, 2005). In fact, "distance learning can exist without online learning, and online learning is not necessarily distance learning" (Bates, 2005: 14-15). Distance education refers to online education that takes place only on distance while e-learning, on the other hand, relates to the use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for face-to-face meetings by online encounters. E-learning is used by all types of students on all educational levels, from kindergarten to doctoral studies, while 'Distance education' is aimed at students who are located in dispersed places and are physically distant from their teachers and the teaching institution, whereas 'e-learning' can be easily utilized by both distant and on-campus students, and even more effectively by the latter (Guri-Rosenblit, 2005).

There is a variety of pedagogical models that have been used in online learning and teaching practice during the last decades. These pedagogical models usually align with a particular learning theory. According to e e-learning literature, there are no e-learning theories per se, only enhancements of the classical learning theories of behaviorism, cognitivism, and constructivism that include the use of technology in learning. Andrews (2011) claims that the reason for applying the classical learning theories to elearning has been that e-learning is the same as conventional learning except for the "e" component which is argued to be just a conduit of delivering learning. Anderson and Dron (2012) have clearly defined and examined three generations of distance education pedagogy which are the following: 1) cognitive-behaviourist, 2) social constructivist, and 3) connectivist pedagogy as it is presented in the following Table 2.

Generation of distance education pedagogy	**Technology**	**Learning activities**	**Learner granularity**	**Content granularity**	**Evaluation**	**Teacher role**	**Scalability**
Cognitive–behaviourism	Mass media: Print, TV, radio, one-to-one communication	Read and watch	Individual	Fine: scripted and designed from the ground up	Recall	Content creator, sage on the stage	High
Constructivism	Conferencing (audio, video, and Web), many-to-many communication	Discuss, create, construct	Group	Medium: scaffolded and arranged, teacher-guided	Synthesize: essays	Discussion leader, guide on the side	Low
Connectivism	Web 2.0: Social networks, aggregation & recommender systems	Explore, connect, create, and evaluate	Network	Coarse: mainly at object and person level, self-created	Artifact creation	Critical friend, co-traveler	Medium

Table 2. Summary of Distance Education Pedagogies (Anderson & Dron, 2011)

They argue that to a large extent, the generations have evolved in tandem with the technologies that enable them. Based on literature, they have done an analysis of each one of the three generations both from a pedagogical (Anderson & Dron, 2011) and a technological perspective (Anderson & Dron, 2012). According to their research, during the first generation of distance education pedagogy, "Cognitive–behaviourist" pedagogical models arose in a technological environment that constrained communication to the pre-Web, one-to-one, and one-to-many modes". In the second generation of distance education pedagogy, "Social–constructivism" flourished in a Web 1.0, many-to-many technological context. In the third generation of distance education pedagogy, "Connectivism" is at least partially a product of a networked, Web 2.0 world of social and participatory media and the read-write Web. The recent fourth generation, called "Web 3.0", brings new technologies such as augmented reality, artificial intelligence, etc. (Anderson & Dron, 2012). They sustain that what has changed in all three generations are the relationships among teachers, students and content. In the first generation of distance learning, student-to-content interactions of cognitive-behaviourist models prevail, while in the second generation of social- constructivism pedagogical models the student-to-student interaction is highly increased. Finally, in the third generation of connectivist pedagogies, the highly networked student–content-teacher interrelationship

predominates, "in which students become teachers and teachers become students, with interaction mediated through the persistent digital artefacts that all create". In every generation, the pedagogical models change, the role of teachers and learners change as well as the educational content, the type of activities and the assessment process (Anderson & Dron, 2011).

An interesting approach for categorising elearning theories, frameworks and models have been also presented by Mayes & Freitas (2004, 2013) who proposed "three clusters or broad perspectives, which make fundamentally different assumptions about what is crucial for understanding learning". They have been inspired by the approach of Greeno, Collins & Resnick (1996) who proposed three major streams of instructional theories: a) empiricist (behaviorist), b) rationalist (cognitivist and constructivist) and c) pragmatist-socio-historic (situationalist). More concretely, they have interpreted learning practice from three different perspectives:

1. The associationist/ empiricist perspective (learning as activity based on structured tasks);
2. The cognitive perspective (learning as achieving understanding);
3. The situative perspective (learning as social practice).

The elearning design implications of the three theoretical perspectives are the following:

1) The *associative view* emphasises:

- Routines of organised activity;
- Clear goals and feedback;
- Individualised pathways and routines – matched to the individual's prior performance.

2) The *cognitive view* encourages:

- Interactive environments for construction of understanding;
- TLAs that encourage experimentation and the discovery of broad principles;
- Support for reflection.

3) The *situative view* emphasises:

- Environments of participation in social practices of enquiry and learning;
- Support for development of identities as capable and confident learners;

- Dialogue that facilitates the development of learning relationships.

Mason & Rennie (2006) have also proposed a classification of e-learning's different perspectives: a) content driven, b) communication focused, or c) technologically oriented. Apart from Mayes and De Freitas (2004) there are more attempts by researchers to review learning theories or pedagogical models in an e-learning context (Beetham, 2004). Conole et al. (2003) undertook a review of learning theories and mapped them against a pedagogical framework. Dyke at al. (2007) built on this work by providing an overview of the main learning theories' perspectives connecting them to the e-learning practice, while Ravenscroft (2004) linked learning pedagogy theory to specific examples of elearning innovation. Currier et al. (2005) reviewed a variety of pedagogical vocabularies, thesauri, taxonomies, ontologies as well as classification schemes. Ala-Mutka et al. (2008) has also provided a detailed review of learning theories and pedagogical models.

2.1.2.2 Pedagogical Models and Frameworks in an e-learning context

A number of theories have evolved, most of which derive from the major learning theories discussed previously.

Numerous models for learning have been proposed. Each model has a particular focus and emphasis, and is aligned with a particular set of theoretical perspectives. Beetham (2004) considers a model to be 'a representation with a purpose' with an intended user, and distinguishes five usages of the word 'model': 'practice models or approach', 'theoretical models', 'technical models', 'models for organisational change', and 'students' models'. Models are more than just iconic representations and are usually aligned to a particular pedagogical approach.

Conole et al. (2003; 2010a, b) did a review of pedagogical models and frameworks, focusing on those that are being used most extensively in an e-learning context. They also used the definitions provided by Mayes and De Freitas (2004) on what is a theory, a pedagogical framework and a model for e-Learning. More specifically, according to Mayes and De Freitas (2004):

a) Theories of learning provide empirically based accounts of the variable which influence the learning process and provide explanation of the ways in which that influence occurs.

b) Pedagogical frameworks describe the broad principles through which theory is applied to learning and teaching practice.
c) Models of e-learning describe where technology plays a specific role in supporting learning.

The following Table 3 (Conole et al., 2003; 2010a, b) presents a number of learning Models and frameworks that have been used in the e-learning context matching them with the relative theories. She adopted the taxonomy proposed by Mayes and de Freitas' (2004) who grouped all learning theories into three categories: Associative (learning as activity through structured tasks), Cognitive (learning through understanding) Situative (learning as social practice).

Perspective	Approach	Characteristics	E-learning application	Models and frameworks
Associative	Behaviourism Instructional design Intelligent tutoring Didactic E-training	Focuses on behaviour modification, via stimulus-response pairs; Controlled and adaptive response and observable outcomes; Learning through association and reinforcement	Content delivery plus interactivity linked directly to assessment and feedback	1. Merrill's instructional design principles 2. A general model of direct instruction
Cognitive	Constructivism Constructionism Reflective Problem-based learning Inquiry-learning Dialogic-learning Experiential learning	Learning as transformations in internal cognitive structures; Learners build own mental structures; Task-orientated, self-directed activities; Language as a tool for joint construction of knowledge; Learning as the transformation of experience into knowledge, skill, attitudes, and values emotions.	Development of intelligent learning systems & personalised agents; Structured learning environments (simulated worlds); Support systems that guide users; Access to resources and expertise to develop more engaging active, authentic learning environments; Asynchronous and synchronous tools offer potential for richer forms of dialogue/interaction; Use of archive resources for vicarious learning;	3. Kolb's learning cycle 4. Laurillard's conversational framework 5. Community of Inquiry framework 6. Jonassen's constructivist model 7. n-Quire model
Situative	Cognitive apprenticeship Case-based learning Scenario-based learning Vicarious learning Collaborative learning Social constructionism	Take social interactions into account; Learning as social participation; Within a wider socio-cultural context of rules and community;	New forms of distribution archiving and retrieval offer potential for shared knowledge banks; Adaptation in response to both discursive and active feedback; Emphasis on social learning & communication/collaboration; Access to expertise; Potential for new forms of communities of practice or enhancing existing communities	8. Activity Theory 9. Wenger's Community of Practice 10. Salmon's 5-stage e-moderating model 11. Connectivism 12. Preece's framework for online community
Assessment				13. Gibbs and Boud models 14. Nicol and the REAP framework
Generic				15. The OU (SOL) model 16. The OU LD & Course Business Models 17. The 3D pedagogy framework 18. Bigg's constructive alignment 19. The Hybrid Learning model 20. Gee's affinity model

Table 3. Contextualising frameworks and models (Conole et al., 2003)

From this Table 3, we can understand that there is a variety of frameworks and models (Merrill's instructional design principles, 2002; Kolb's learning cycle, 1984; Laurillard's conversational framework, 2002; Community of Inquiry framework, Garrison and Anderson, 2010; Jonassen's constructivist model, 2006a,b; n-Quire model by Dewey, 1916; Activity Theory by Kuuti, 1996; Wenger's community of Practice 1998; Salmon's 5 stage e-moderating model, 2003; Connectivism by Siemens, 2005; Preece's framework for online community, 2000; The 8 Learning Events Model (8LEM) by Leclercq & Poumay, 2005; Verpoorten et al., 2005) that have been used in the e-learning context in order to achieve different educational goals.

Another interesting pedagogical framework created for e-learning is the Mayes & Fowler's framework (1998) which maps stages of learning into categories of e-learning. The learning cycle is described in three stages: Conceptualisation, Construction and Application: Each of these stages reflect an essential aspect of pedagogy. It starts with the analysis of what it is to be learned, it continues with the tasks that will enhance the achievement of the intended outcomes through feedback and reflection, and it concludes with the situating of these outcomes through the dialogue with tutors and peers.

Furthermore, Collis & Moonen (2002) proposed a flexibility-activity framework named as the '4Es' pedagogical model' which describes the four key components of technology integration, referring to them as key components of "flexible learning in a digital world".

These four (4) basic components are the following:

1. Environment (institution);
2. Educational effectiveness (implementation);
3. Ease of use (pedagogy);
4. Engagement (technology).

The approach for flexible learning can be seen in a top-down, institution-wide to technological aspect, or in a bottom-up, that is from the technological aspect all the way up to the institution. Each component depends on and feeds from the other.

Anderson's Model of Online Learning (MoOL) is an interesting model which makes a thorough analysis of the importance of interaction in all forms of learning by focusing on learners and teachers, and their interactions with each other and with the content in order to create online educational experiences and contexts (Anderson, 2011). All

these different types of interactions, which can take place within a community of inquiry, are expected to employ a variety of network-based synchronous and asynchronous communications, with the learner acting either as an individual or within a group. What is important is that instructional design and strategies are now shaped very much around the learner in a universal and flexible manner and new tools, like data analytics services, can support and increase the level of all types of interaction and engagement apart from providing to the learner with the necessary support and feedback (Anderson, 2011).

A more recent pedagogical model for e-learning is the Holistic e-learning systems theoretical framework (Aparicio et al., 2016) which aims to identify the participants, technology, and services related to e-learning. Another one is the Multimodal Model for Online Education (Picciano, 2017) which describes the phenomenon of pedagogically driven online education, and emphasizes that online education has evolved as a subset of learning in general rather than a su bset of distance learning.

2.1.3 Overview of existing pedagogical models applied in Online Language Learning and Teaching Practice

2.1.3.1 Theoretical background

Interesting frameworks and models aforementioned can be applied in the context of Computer Assisted Language Learning (CALL), the research field which investigates digital language learning and teaching, depending on different educational goals. Frameworks and models related to social constructivism theories and connectivism are preferred in the context of CALL, because they promote task-based learning, social interaction, authentic learning, collaborative learning, personalised autonomous and self-directed learning, social learning which are crucial for learning a second or a foreign language as it was analysed in the first part of this report.

Since 1960 there is a vast variety of research in the field of CALL that was always connected to the main learning theories and the Second Language Acquisition theories as well as to the new technological advancements. In fact, CALL itself has

undergone quite dramatic changes in pedagogical paradigms in the wake of technological changes.

Ally (2004) introduced three approaches in education and learning theories: behaviorist, cognitivist, and constructivist. Later, more researchers (Warschauer, 1996, 2009; Chapelle, 2009; Gass & Selinker, 2008; Wang & Vásquez, 2013) describe how the different approaches i.e behaviorist, cognitivist, and sociocultural (constructivist) have influenced theories and research with respect to second language acquisition and development.

The first period (1960s to 70s) of CALL was called "behaviorist and later structural CALL", the second period (1970s to 80s) was called "Communicative CALL" and the last period (2000 onwards) was called "Integrative CALL" which embraced Multimedia and the Internet (Warschauer, 1998, 2000; Warschauer & Healey, 1998). Initially, the behaviorist approach in language acquisition emphasized the importance of behavior and promoted behaviorist language learning approaches such as drills and practice tasks. As Warschauer (1998, p. 1) sustained "Essential in behaviorist CALL is the understanding that repeated exposure to the same material is beneficial or even essential to learning".

In the second phase, prevail the communicative approach in CALL that emphasizes interaction and the Cognitivist Approaches in both education theory and second language acquisition theories. These approaches emphasize the importance of thought processes in learning, and language learning is seen as a process involving memory, thinking, reflection, abstraction, and metacognition. What is important is how learning content and tasks can be presented in various ways in the online environment in order to subsequently be stored in the learner's long-term memory (Ally, 2008).

Later in the "Integrative CALL" phase prevails the integration of the teaching of language skills into tasks or projects as well as the Computer-mediated Communication (CMC). Tandem learning is a very powerful use of CMC especially in second language pedagogy as it gives the opportunity of instant communication to two native speakers of different languages to communicate regularly with one another, each one with the purpose of learning the other's language. In this CALL phase, it is also observed the arrival of MOOs ("Multi-user domain, Object-oriented"), an online social community where you can interact with other users in a text-based virtual reality. It is clear that a MOO provides a potentially highly useful and cost-effective

way of bringing students together for tandem learning. (O'Rourke, 2013). This offers the benefits of authentic, culturally grounded interaction, while also promoting a pedagogical focus among participants. In this phase, sociocultural approaches, which draws heavily on Vygotsky and Bakhtin, are promoted in Second Learning Acquisition (SLA), which see language learning as an "interpersonal process situated in a social and cultural context and mediated by it" (Lamy & Hampel, 2007, p. 19). Vygotsky claimed that learning resulted from social interaction rather than through isolated individual effort, and that engagement with others was a critical factor in the process (Vygotsky 1978: 89). Generally, when sociocultural theory is applied in CALL, it means that new and different forms of social interaction can occur, both online and in the classroom. The terms 'situated learning' and 'communities of practice' derive from this perspective and are often used to highlight the importance of active learner participation in the community of the classroom or in online community settings (Donato and McCormick, 1994). Warschauer (2005) also argued about cooperative or collaborative learning in online language classrooms where teachers could work with students on purposeful activities and could learn in social groups and communities of practice.

In fact, Constructivist or Socio-Cultural Approaches in second language learning theories see as essential the possibility for learners to construct their own knowledge and the importance of social contexts as preconditions for learning a language. As a consequence, learners in online second language learning environments should be allowed to construct knowledge rather than being given knowledge through instruction. Furthermore, learners should be given the possibilities to interact with both online teachers and other online learners (Ally, 2004; Chapelle, 2009; Thomas, 2009). Sociocultural SLA approaches encompasses a number of known terms: Zone of proximal development (ZPD), scaffolding, mediation, identities, interculturalism, affordances, community of practice, participatory learning, situated learning theory, co-construction, ecology, dialogism, critical theory, discursive practices, activity theory, private speech, peer response, collaboration, networking, etc. (Zeungler and Miller, 2006).

The sociocultural approach to CALL has a better compatibility with the second-generation WWW, or Web 2.0 tools. Of course, each technology has its own affordances that govern differently the ways in which interactions occur (see Hutchby, 2001; Hanson-Smith, 2003). The technology does not determine the interaction, but its attributes do help shape them. New emerging technologies of this new web era have opened new opportunities of interconnection and interaction and

have brought new learning theories that apply to CALL. Recently, the connectivist theory was named as "the learning theory for the digital age" (Siemens, 2005). It perceives learning as a process that is not entirely under the control of the individual and occurs within complex and lacking definite form environments (Siemens, 2005). Downes (2012) argued that "to learn in a connectivist course is to grow and develop, to form a network of connections in one's own self. Connectivist learning is a process of immersion in an environment, discovery and communication – a process of pattern recognition rather than hypothesis and theory-formation". This has led to a new phase for CALL as it brings new educational challenges in the area of online language learning in terms of the nature of networks connecting people but also in terms of the quantity and the availability of knowledge. Examples of this new practices in online Language Learning are the Massive Open Language Learning Courses (LMOOCs or MOOLCs) which aimed at unlimited participation and open access via the web and they are largely divided into behavioristic-based xMOOCs and connectivist-based MOOCs. According to the literature, the connectivist MOOC type (cMOOC) is ideal for language learning courses since cMOOCs support interactivity, peer-to-peer learning, autonomy, social networking, openness and emergent knowledge (Perifanou & Economides, 2014; Perifanou, 2014a, b).

2.1.3.2 The challenge of designing online language courses: theories, frameworks and models

CALL's environment design, educational material design, task design, are all regularly influenced by multiple theoretical perspectives, sociocultural theory, constructivism, situated learning and multimodality, connectivism. There is no common CALL theory but what is obvious from the analysis of the evolution phases of CALL is that there is a continuous progress of technology and pedagogy and it looks like that one drives the other.

However, researchers have tried to define what is a CALL theory. Egbert & Hanson Smith (2007) claimed that there is no need for a "CALL theory": "... educators do not need a discrete theory of CALL to understand the role of technology in the classroom; a clear theory of SLA and its implications for the learning environment serves this goal" (2007, p. 3). Though Hubbard (2009) emphasised the importance of deep understanding of the impact of technology on the learning environment and the learning process. He defined CALL theory as "the set of perspectives, models,

frameworks, and specific theories that offer generalizations to account for phenomena related to the use of computers and the pursuit of language learning objectives, to ground relevant research agendas, and to inform effective CALL design and practice.... a CALL theory is a set of claims about the meaningful elements and processes within some domain of CALL, their interrelationships, and the impact that they have on language learning development and outcomes (Hubbard, 2009: 3). In an interesting overview paper, Levy and Hubbard (2016) examined 166 research papers in order to detect the pedagogical theories used in the context of CALL. They found that there were no clearly 'dominant' theories showing up with any consistency except from a small number of general labels (SLA theory, learning theory, linguistic theory, etc.).

They identified four primary sources for the theories:

(1) language learning–centred extensions of human-computer interaction or technology in education theories,
(2) technology-centred extensions of second language acquisition theories,
(3) learning theories from psychology and education, and
(4) linguistic theories.

Across twenty-five years of articles, they identified just one solid reference to a theory developed specifically for this field (Levy and Hubbard, 2016).

Generally, literature reveals that there are a number of theories (Major theories, SLA theories, Foreign Language Acquisition theories, e-learning theories) that clash with one another and emerge in new combinations according to the affordances of novel online language learning environments.

There has been research that addresses technology integration in language teaching from different perspectives and frameworks (Hoven, 1999; Bax, 2003; Plass & Jones, 2005; Salaberry, 2001; Tudor, 2003; Hampel & Hauck, 2006). Technology integration is defined as 'the process of determining which electronic tools and which methods for implementing them are the most appropriate responses to given classroom situations and problems' (Roblyer & Doering, 2010, p. 8). For example, Hoven (1999) offered theoretically grounded models for computer-based listening. Salaberry, (2001) outlined the pedagogical principles of using technologies in teaching second language, while Bax (2003, p.23) presented the process of 'normalization' of CALL and ways of how 'technology could become invisible and embedded in everyday practice'. Tudor (2003), on the contrary, proposed an ecological perspective

of language teaching highlighting 'the various human and contextual factors which influence the use and likely effectiveness of this technology' (Tudor, 2003, p.5) without addressing the role of technology. He emphasized that teaching and learning processes involve teachers, students, and all others who influence the practices in each classroom, as well as the dynamic interaction between participants, methodology, and context. Later, Plass & Jones (2005) proposed a model of cognitive processing in second-language acquisition supported by multimedia. This model provides only insights on how teachers can use multimedia to support language learners but does address the factors that could affect the use of technology by teachers. Hampel & Hauck (2004) described a pedagogical framework for integrating audio-conferencing effectively in distance language courses at their institution.

Another research work in this area of CALL is Levy's (2002), who has explored the perspective of design as a principled approach to CALL, including approaches to the "design of CALL tasks". He categorised 93 articles from 1999 to 2002 based on the different uses of the term 'design', i.e., design of artifacts (e.g., software), online courses, materials, activities. Other known theories and concepts that have supported the process of designing instructional technology for language learning are the following: The Content-Based Lesson Plan, Bloom's Taxonomy, Constructivism, Metacognition, Schema Theory.

Perhaps the most elaborated design framework is that of Colpaert (2004), which is pedagogy-driven and creatively blends engineering principles and pedagogical approaches and is specifically focused on the creation of language courseware.

As most of the pedagogy-driven approaches, this is also inspired by the learner-centered or constructivist pedagogical approach. Colpaert (2004) has explored the boundaries of pedagogy-driven research in the context of online language learning. This design framework consists of two phases: (a) define first what is needed in terms of functionalities, and (b) evaluate to what extent available technologies allow them to be implemented. It is similar to the instructional design model ADDIE (Analysis, Design, Development, Implementation, Evaluation). In contrast to the other alternative approaches for the development of an online learning environment (technology-driven, attributes-based and affordance-based), this approach involves "a detailed specification of what is needed for language-teaching and language-learning purposes in a specific context, defines the most appropriate method, and finally attempts to describe the technological requirements to make it work". The goal of this

research was to try to prove that sufficient linguistic/ didactic functionality can be realized online by applying an adequate design plan.

Furthermore, it is worth mentioning that there are also specific theories of Foreign Language Acquisition which have provided one rationale for instruction and for the design of online language learning environments such as the Monitor theory (Krashen, 1982), the Input Processing Model (Lee and Van Patten, 1995), Interaction Theory and Sociocultural Theory (Doughty, 1987; Long, 1981; Vygotsky, 1978; Lantolf, 1994).

Monitor Theory (Krashen, 1982) emphasizes the importance of comprehensible linguistic input in the acquisition process. It proposes an initial silent period in which students listen, but do not speak, as a way to promote acquisition. Monitor Theory indicates that a series of activities emphasizing listening comprehension should precede even the simplest production activities.

The Input Processing Model (Lee & Van Patten, 1995) differentiates between input (the language to which the learner is exposed) and intake (the language that actually gets processed by the learner). This model emphasizes the importance of binding the form of a word to its meaning. If it is used as a rationale, it would indicate that early input activities ought to be simple recognition activities that require students to attend to one important detail and connect form to meaning. Activities would progress from simple to complex activities along a continuum ranging from recognition to simple one word production to sentence level and discourse level production in a logical order.

Interaction Theory and Sociocultural Theory emphasize the importance of the social aspect of language learning (Doughty, 1987; Long, 1981; Vygotsky, 1978; Lantolf, 1994). Within these frameworks, language is negotiated and socially mediated or assisted. Paraphrasing, requests for repetition, clarification requests, verification checks, and comprehension checks are tools used by the novice learner to achieve proficiency during interaction with an expert speaker. Promoting social interaction through the computer and providing opportunities for the production of both oral and written language that may be negotiated would be indicated in a design organized around these theories. These two theories also imply that a completed educational program should be designed so that paired and group-learning opportunities are afforded to the student.

Theories are linked to a variety of language teaching methods (i.e. Community Language Learning Method, Communicative Approach, Multiple Intelligences Based Instruction, Content-Based Instruction, Task-Based Instruction, Interactive-Integrated Approach) which also influence the design of instructional material and of online language learning environments.

In conclusion, literature reveals that there is a variety of theories such as Major Learning Theories, SLA theories, Foreign Language Acquisition theories, e-learning theories that are applied in different combinations to Online Language Learning and Teaching Practice according to the technical affordances and the pedagogical goals in every case.

O2-T2. Development of the OPENLang Network's Pedagogical Framework

The OPENLang Network's Pedagogical Framework was designed taking under consideration first the literature review on existing pedagogical theories, frameworks and models applied in Online Language Learning and Teaching Practice, which was analytically presented in the previous section, and secondly, the research findings of the first OPENLangNetwork's needs analysis survey which aimed to map and analyse the language needs of the participants involved in long-term mobility activities supported under Erasmus+ Key Action 1. More concretely, the philosophy behind the design of this framework, was inspired by a variety of learning theories (SLA, FLL, E-Learning) that could support online language learning in open learning communities addressing the pedagogical needs of a specific target group which was the Erasmus+ KA1 mobility participants involved in long-term mobility activities (HE students and staff, VET, learners/staff, adult and school education staff, Youth learners and workers).

2.2.1 OPENLang Network users' needs

During the first semester of 2019, the consortium of the OPENLang Network Erasmus+ project conducted a needs' analysis survey in order to identify the language and cultural needs as well as the motivations of the Erasmus+ KA1 mobility participants who were involved or planned to be involved in an Erasmus + mobility for at least one month. They have also taken a set of interviews with a number of Erasmus+ stakeholders from 3 European countries (Greece, Cyprus and Italy). The research findings of the survey have shown that learning a new language and exploring a new culture were the two main reasons for participating in an Erasmus+ mobility, as mentioned also by other researchers in literature (Gallarza et al., 2019). Improving or gaining language skills for a fluent or at least basic communication level or even for specific purposes were the most important educational priorities for the participants. In fact, most of the participants characterised their communication with local people during their mobility as the biggest linguistic challenge. Other important linguistic challenges for them include the difficulty to understand the regional accents/dialects and the comprehension of the academic language. Though, for many of them, advancing their listening skills and enriching their general vocabulary was still a very

important factor, while improving their reading and writing skills was a less important one (Kosmas, et al. 2020, 2021; Perifanou et al., 2021). Participants also had different views regarding the language level needed by the Erasmus+ participants during their mobility. Based on their linguistic priorities, some participants claimed that the C1-C2 levels (based on CEFR classification) were the ideal language levels to have in order to cope with material that is academic or cognitively demanding, while for everyday communication a lower level was enough. Participants were also asked to express their preferences regarding the type of learning content, the online language learning environment and the mode of learning. Regarding the content, most of the participants preferred multimedia material (images, video, etc.) and an interactive user-friendly online language learning environment with less text and more visual representations. Regarding the mode of learning most participants preferred the social way of learning. Furthermore, combining the results of questionnaires and interviews it was shown that there is a big need for linguistic support via training, seminars or language courses for both outcoming and incoming participants and also a need for networking and collaboration between participants in the Erasmus+ KA1 mobility in order to achieve cultural understanding, intercultural communication and to build friendships or even professional opportunities for the future.

The findings of the OPENLang Network survey have confirmed previous research findings that have shown that the development of language proficiency and learning a different culture are the main reasons to participate in an Erasmus+ mobility (Van Maele et al, 2016; Aslan & Jacobs, 2014; Borghetti & Beaven, 2017; Llanes et al., 2012, Gallarza et al., 2019). Other research findings, that were also really important for the design of the OPENLang Pedagogical Framework, were first that the participants gave priority in advancing specifically their listening and communication skills as well as their general vocabulary, and secondly that the participants preferred social learning, intercultural communication and networking in an interactive multimedia environment.

2.2.2 Design of the OPENLang Network's Pedagogical Framework

Next, the OPENLang Network's Pedagogical Framework is designed based on the questionnaire and interviews answers as well as on the literature review on the theoretical background of the online language education that was conducted and presented in the previous sections.

The philosophy behind the design of the OPENLang Network's Pedagogical Framework was inspired **by a learner-centered and social-constructivist & connectivism pedagogical paradigm blending a variety of pedagogical approaches and instructional strategies derived from the areas of CALL, e-learning, SLA and FLL**.

One of the main challenges of the design of the OPENLang Network's Pedagogical and Design Framework was to provide the opportunity to each learner for social interaction, Language Learning input/output, authenticity, exposure, feedback, and learner autonomy which are key factors for a successful language learning (Perifanou, 2015).

The learner in the OPENLang Network language learning environment is seen as being in the center of the learning process and has multiple opportunities to interact either alone with the open educational material content (OERs), or with other peers and/or the teacher, in small groups, or in a one-to-one pair, or even in community as it is presented in the following diagram (Fig. 3).

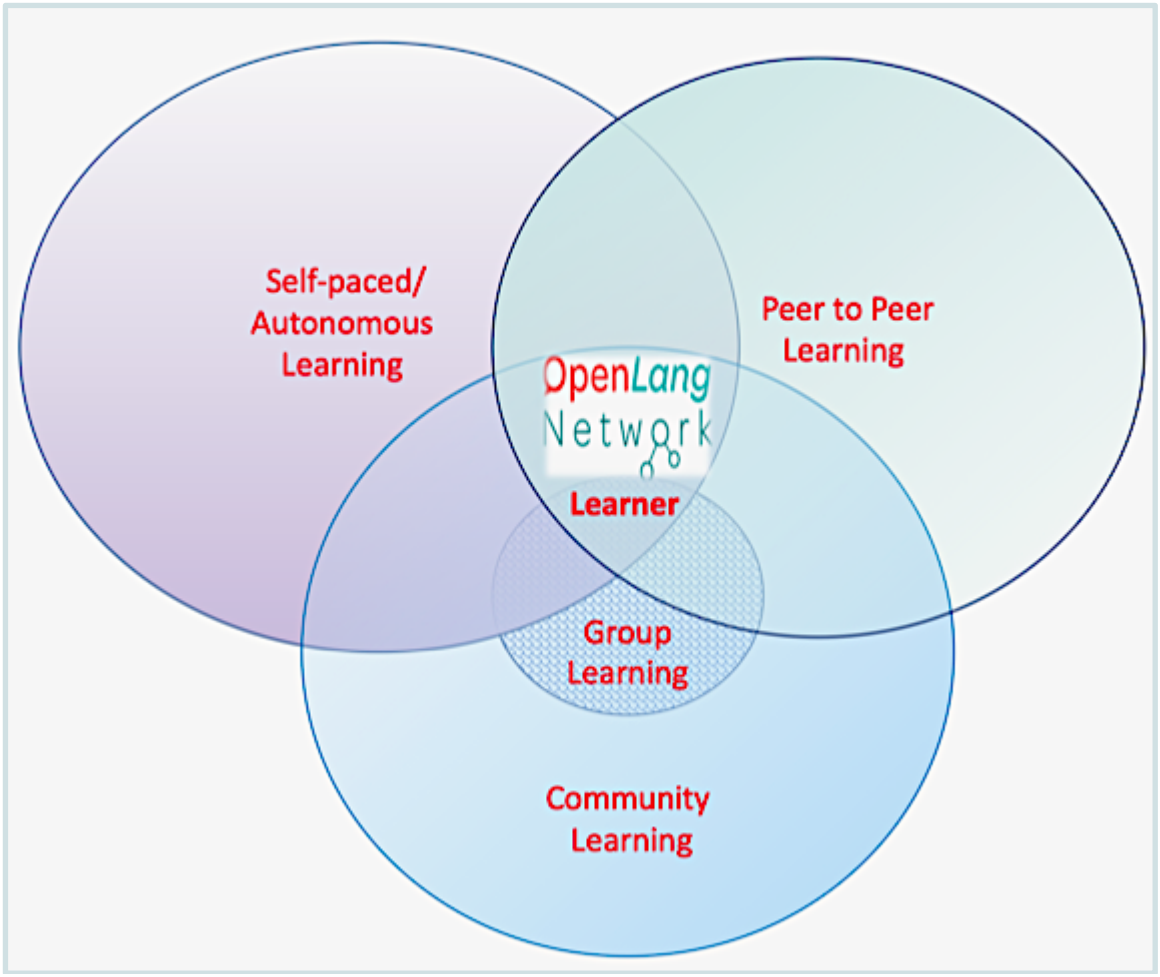

Figure 3. Learner's Interaction in the OPENLang Network Language Learning Environment

Designing an open language learning environment which could provide multiple types of Interaction for the learners is a main objective but also a big challenge according to the literature suggestions. Interaction-based learning is a cornerstone of many socially oriented approaches to L2 learning" (Wang & Vásquez, 2013, p. 420). As it is known increasing contact with the target language appears to be one of the most critical factors for successful Language Learning. Language is about communication, and there is nothing more motivating than being able to use one's newly acquired language skills in an authentic environment (Perifanou, 2010, 2015). In fact, learner's participation and interaction are at the center and of crucial importance for successful language learning, whether it is face-to-face, blended or fully online teaching. This is because "language learning is a skill-based process rather than a content-based one. Skills' development, such as the acquisition of speaking and listening skills, required constant synchronous interaction in the target language" (Wang & Chen, 2009, p. 5). In fact, fostering real-time synchronous interaction is an

important principle in distance language teaching as synchronous oral and visual interaction is a crucial component in online language learning.

A successful online language learning environment should support learners' autonomy and should give them sufficient time for practice and the possibility to get feedback and guidance when they need them (Perifanou, 2014). Each learner of the OPENLang Network is seen as an autonomous learner but also as a learner who can interact with other peers and/or the teacher in pairs or in small groups or even in a big community.

A combination of several learning theories have inspired the pedagogical design of the OPENLang Network Pedagogical Framework such as Self-regulated learning, Autonomous learning, Personalised learning, Collaborative learning, Cooperative learning, Community learning, theory of transactional distance, Language Communication theory, Second Language Acquisition theories (SLA), Interaction and Socio-cultural theory, Social Constructivism and Connectivism, Activity theory, Situated Learning theory, Language Acquisition Theory, Tandem Learning theory, Wenger's Theory of communities of practice.

The following diagram (Fig. 4) presents the active role of the OPENLang Network learner. Each learner is free to take his/her own learning path and is responsible for his/her personal learning process. The learner can decide to assess his/her language level in the language of his/her preference or to explore, find and use the open educational content or tools of his/her preference. Language learners can also create, share, evaluate and recommend Open Educational Resources (OERs). Furthermore, each learner can practice the language of his/her choice by choosing a language partner such as a peer or a teacher. The OPENLang Network learner belongs to a large community and has access to an open forum where he/she can start an interesting discussion about any topic he/she likes. This aspect is very important because the target group of users are Erasmus+ students who face many challenges and difficulties in every phase of their mobility. Teachers also play a significant role in this network as they can support the community with their contribution either as language partners, or as members of the discussion area or as content contributors as they can create, share, evaluate or recommend their language OERs.

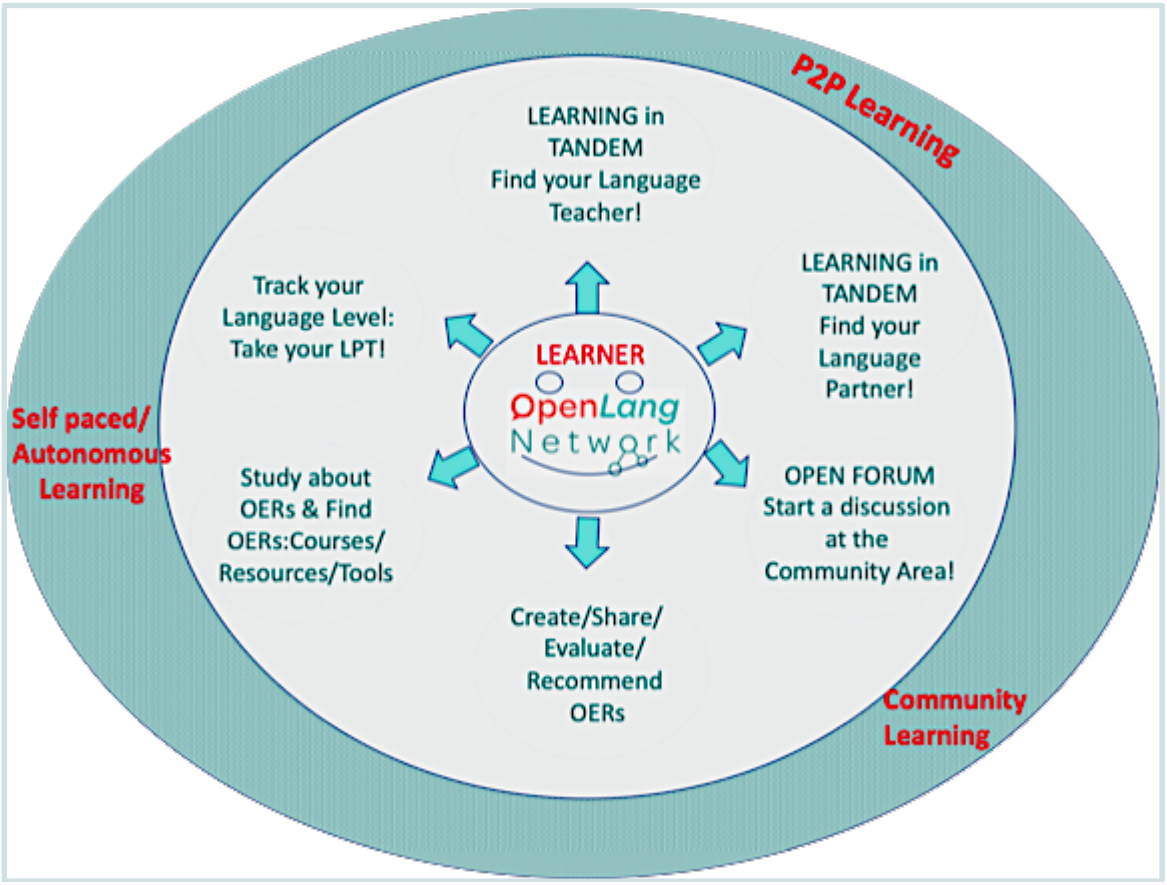

Figure 4. OPENLang Network Language Learning Environment (Phase 1)

Another idea that we would like to test is also the possibility of creating small working language groups in which a teacher would facilitate the discussion of max 6 students (or 3 tandem pairs) (Fig. 5)

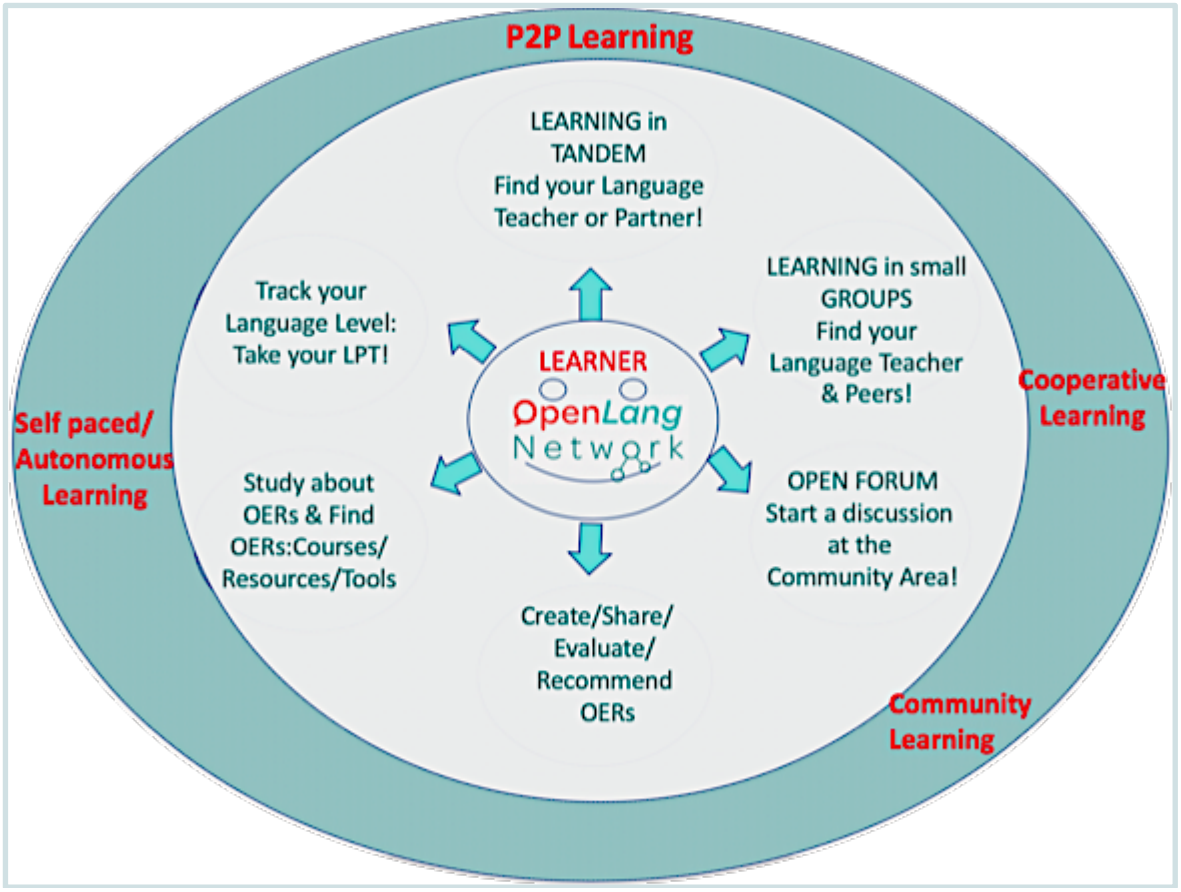

Figure 5. OPENLang Network Language Learning Environment (Phase 2)

The learning process is in accordance with the principles of self-paced self-regulated learning and autonomous learning, personalised learning, tandem learning, cooperative and collaborative learning, community learning, social constructivism and connectivism.

2.2.1 Self- Paced, Self-Regulated & Autonomous Learning

Each learner of the OPENLang Network is seen as an autonomous learner who is at the center of the learning process. A number of known theories are connected to autonomous learning and the learner-centred approaches. According to literature, in a learner-centered approach the learner is considered as the key agent of the learning process (White, 2003), and a defining element in online learning (Wang & Chen, 2009). The choices regarding the pedagogical design of the OPENLang Learning environment were driven by the learners' interests and needs. From this pedagogical perspective, our research team aims to create a diverse learning environment which could enable personalized learning that could allow learners to make decisions about how to choose tools and configure the learning environment to best suit their learning

goals and needs (McLoughlin & Lee, 2010). Personalised and autonomous learning are in line with self-paced and self-regulated learning (SRL). Naidu (2008) defines self-paced learning as "a mode of learning that enables individuals to study online or with the help of portable technologies in their own time, at their own pace, and from their own place" (p. 260). Self or learner -paced distance and e-learning courses are based on increased learner independence and flexibility, as learners can start their courses at any time during the year, and complete them at their own pace (Anderson et al., 2005). Self-regulated learning (SRL) is a known distance education theory, which is defined as the ability of learners to control the factors or conditions affecting their learning (Dembo, Junge, & Lynch, 2006, p. 188). Pintrich (2000) defined self-regulated learning as "an active and constructivist process whereby learners attempt to monitor, regulate, and control their cognition, motivation and behaviors after setting goals for their learning, are guided and restricted by their own goals and the learning environment they are in" (p. 453). Social context plays an important role in self-regulated learning (Zimmerman, 2000). Instructors or peers are external factors who become models to guide learners in self-regulation activities and provide feedback (Hadwin et al., 2010). Because of the social processes, learners can develop their competencies to meet challenges, for content and context. Consequently, they become self-regulated learners (Hadwin et al., 2010).

The OPENLang Network language learning environment aims to be a social language learning environment where each learner is a self-paced and self-regulated learner who can have multiple opportunities for authentic interaction (input and output). This pedagogical approach also offers other important opportunities to learners such as the free choice to set their own goals, their own learning strategies, the time of study, with whom to study and the possibility to monitor and reflect on their learning progress (Zimmerman, 2000). Some studies have shown that self-regulated learners are more successful in distance learning (Kuo, Walker, Schroder, & Belland, 2014) and others (Kuo, Walker, Schroder, & Belland, 2014) sustained that distance learning is more flexible, learner-centered, and autonomous than face-to-face as it requires learners to be self-regulated and use their self-regulated learning skills more frequently. In general, self-regulated learning skills are critical for success in self-paced distance learning environments where learners study on their own.

2.2.2 Peer-To-Peer or Tandem Learning

Following the needs of the OPENLang Network's survey participants, about multiple opportunities for interaction, we have introduced *tandem learning* services in the

OPENLang Network Platform as it was originally planned. Tandem language learning has a lot to do with collaborative language learning. This type of learning takes place when two people share the idea of improving their communicative competence in the target language, and establish a negotiation to reach an agreement on how they will deal with the tasks they have to face together (Alonso, 2011). The overarching principles of tandem learning are: a) The principle of autonomy: You are responsible for your own learning; and b) The principle of reciprocity: You are responsible for ensuring mutual benefit (Brammerts, 1996). More specifically, "Autonomy" implies that both partners are responsible for their own learning, so they decide "what they want to learn, how and when, and what sort of help they need from their partner". "Reciprocity" means that each partner brings certain skills and abilities which the other partner seeks to acquire and in which both partners support each other in their learning in such a way that both benefit as much as possible from their working together (Brammerts, 2003:29). Both principles are closely related to the views some scholars have on autonomy in foreign language learning (e.g. Benson, 1996; Little, 1991; Nunan, 1992), as they understand it as a mutual collaboration among students with a view to improving their linguistic competence in the target language but also their intercultural communicative competence by learning of the way people live and behave within the target language community (Byram, 1997).

Other studies (Woodin, 2001; Morley & Truscott, 2006) have explored the application of Tandem learning by Erasmus students. In the first study (Woodin, 2001) Erasmus students preferred Tandem learning to other ways for practicing the language and learning the new culture. The students from other European Union countries, studying under the Erasmus scheme, reported that tandem learning was a real opportunity for them to get to know English students and to practice English as this was the best way to socialise closely with them as it was much more difficult to make English friends when they came to study in the UK. According to the findings of another study (Morley & Truscott, 2006), Tandem learners may gain almost as much as learners immersed in the L2 environment, in this case Erasmus Tandem students. Interactive situations such as Tandem learning, which are typically friendly and of low anxiety, assist the development of automaticity in second language use, and thus the ability to produce longer and more fluent speech units. For the Erasmus students, who were immersed in the L2 environment, tandem learning has activated and automated some of the language that had been learnt formally in their country.
During the last 20 years, many researchers (Appel & Mullen, 2000; Cavalari, 2019; Mullen, Appel, & Shanklin, 2009; Nazarenko, 2019; Pomino, & Gil-Salom, 2016; Telles, 2012; Telles, Zakir, & Funo, 2015; Vasallo & Telles, 2006; Zhang, 2016) have

explored the potentials of tandem learning in the area of language learning. Tandem learners have practiced a variety of languages such as English, German, Spanish, Japanese, Chinese, Russian, Brasilian using first the traditional email and later several Web 2.0 tools such as Skype, Adobe Connect, Google instant messaging, QQ, WeChat ,wiki, etc.

As far as the use of email tandem in language learning area is concerned, several researches have shown various pedagogical benefits such as development of language learning skills (Braga, 2007), increase of cultural awareness (Dodd, 2001; Woodin, 2001), increase of motivation (Appel & Gilabert, 2002; Dodd, 2001; Ushioda, 2000), enhancement of learner's autonomy (Little, 2003; Ushioda, 2000), increase of learner's metalinguistic awareness (Appel, 1999), More recent findings confirm previous and reveal new research findings, even though the services that support tandem learning are advanced and with many more synchronous communication potentials. Tandem learning facilitates intercultural contact between people from different countries and languages and supports autonomous and collaborative learning (Telles et al., 2015), promote intercultural awareness (Zhang, 2016), improve academic speaking, listening and writing skills in the target language, increase learners' motivation and confidence in their interactions with native speakers (Pomino, & Gil-Salom, 2016). Tandem tasks can vary a lot (i.e., diaries, wiki activities, Skype open or task discussions, etc.) or can be organised with one or more Tandem pairs giving for example different points of view on a topic in order to argue (Woodin, 2001).

All these researches on tandem learning practices have explored mostly the use of tandem learning between specific groups of learners such as two university language classes (Pomino & Gil-Salom, 2016) and usually on the acquisition of two specific languages. Rarely, we have seen a web-based tandem language exchange environment in which more than two languages were practiced such as the ETR web-based tandem learning environment which included three languages (Appel, 2000).

Based on the research findings aforementioned, *Tandem Learning* was selected by the OPENLang Network team as an ideal pedagogical approach for Erasmus+ students to acquire linguistic and intercultural competence by interacting in synchronous and asynchronous ways in pairs or in small groups of tandem pairs. The research in this area is quite limited and the OPENLang Network team aims to explore the benefits of tandem learning practices in an open multilingual European community which is not limited to a few languages but it will support and promote every European language. The research will focus first on finding ways to support the tandem pairs

and at a later stage will research small groups of participants. One idea would be connecting tandem pairs participating in a common discussion and debate on specific topics that a teacher or a peer would propose. Discussion topics for the Tandem communication could be also proposed in the discussion area by the OPENLang Network community. Learners' linguistic or intercultural needs that may emerge during the different phases of the Erasmus+ mobility could be discussed in the discussion area and in this way could enrich the linguistic and intercultural competences of all the participating learners. Small group learning is based on a cooperative learning approach while community learning promotes collaborative learning and is based on social-constructivism learning theories and the connectivism theory.

2.2.3 Small group Learning: Cooperative & Collaborative Learning

More specifically, the pedagogy which lies behind the small group learning is cooperative learning which shares the same basic set of principles with the widespread Communicative Language Teaching. Cooperative language learning responds to the trend in foreign language teaching methods with focusing on the communicative and effective factors in language learning because language learners need to know how to use the knowledge in practice and to express or narrate their thoughts and ideas. Cooperative learning can create an effective learning climate as it offers a relaxed climate in the classroom, can increase student motivation (Brown & Campione, 1994; Crandall, 1999) and increase learner's self-confidence and self-esteem (Zhang, 2010). It also provides various chances of Input and Output as it creates natural, interactive contexts, where students listen to each other, ask questions, and clarify issues and this is valuable in the oral practice and listening comprehension. They also produce more accurate and appropriate language, which itself provides input for other students (Zhang, 2010). Cooperative learning also increases a variety of language functions as it creates a real-life social setting in which language is normally used (i.e., clarifying, making suggestions, encouraging, disagreeing, negotiating of meaning, etc.). Furthermore, cooperative learning promotes learners' responsibility and independence to help students become more autonomous and self-controlled (Johnson & Johnson, 1991).

In the case of the OPENLang Network, the project's team will explore informal cooperative learning tasks where in each task there will participate up to three (3) tandem pairs, preferably with the support of the language teacher who could guide the specific task. In traditional class, the informal or formal group works are

supported by the teacher in multiple ways via specific activities (i.e. webquest, think-pair-share, peer instruction jigsaw, etc.). In the context of the open language learning community we will explore how language learners could work either in one tandem pair, or in two or three tandem pairs together. Cooperative learning in an online context has different challenges and can be facilitated also by various advanced technologies.

2.2.4 Community Learning: Communities of Practice & Connectivism

Additionally, to tandem learning and small group learning, learning in an online community is also a challenging opportunity for OPENLang Network learners. Social constructivism, situated learning, communities of practice and connectivism are theories which lie behind learning in an online community. Since 2005, most of the Second Language Acquisition (SLA) research explored sociocultural and social cognitive theories such as "activity theory, socio-constructivism, community of practice, social cognitive theory" (Wang & Vásquez, 2012, p. 420). Social constructivism conceptualises learning as participation in shared activities where the context and the situated nature of learning are integral considerations. From this perspective, knowledge is distributed among members of a community, and learning involves individuals' abilities to participate successfully in community of practices (Wenger, 1998). Etienne Wenger (1998) describes Communities of Practice (CoP) as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly." This learning that takes place in a CoP is not necessarily intentional as it occurs in a community. Situated Learning Theory also emphasizes that learning is unintentional and situated within authentic activity, context, and culture, known as the "process of legitimate peripheral participation" (Lave & Wenger, 1991). It occurs when students work on authentic tasks that take place in a real-world setting (Winn, 1993). Social interaction is a critical component of situated learning — learners become involved in a "community of practice" which embodies certain beliefs and behaviors to be acquired (Wenger, 1998).

Social interaction is also a critical component in connectivism, the theory of the digital world according to Siemens (2005) who argues that what is more important is the ability to learn (create and understand connections) than the current amount of knowledge. Connectivism is a logical development of social constructivist theory in a digitally-mediated world that views learning as a process of developing networks of information, contacts, and resources that are applied to real problems (Siemens,

2005). According to the theory of Connectivism, learning occurs when a learner connects to a learning community and feeds information into it. Connectivism "is built on an assumption of a constructivist model of learning, with the learner at the centre, connecting and constructing knowledge in a context that includes not only external networks and groups but also his or her own histories and predilections" (Anderson & Dron, 2011).

Connectivism, outlines four foundations for learning, which include autonomy, connectedness, diversity, and openness (Corbett & Spinello, 2020). According to Natt och Dag (2017, p. 302) connectivism has similar principles with adult learning and "the main difference between adult learning and connectivism, however, is that whereas adult learning principles focus on the individual learner, connectivism focuses on the aspect of connectivity, and how the learner himself or herself connects the nodes".

As far as language learning is concerned, it is important to use a variety of information resources (books, Internet, mass media, ICT, etc.) and this is in line with connectivism which defines learning as a process of creating connections among the nodes or information resources. Language learning is also a long-life activity and it cannot be learnt just as a set of words and phrases and this follows into the principles of lifelong learning in adult education and connectivism's connectedness. A connectionist-based course is based on autonomy, diversity (different countries, different cultures and backgrounds) connectedness and interactivity. 'Autonomy' gives priority to learners' own goals, purposes, objectives or values. 'Diversity' ensures that creativity is fostered among members of a community. 'Openness' emphasizes the lack of barriers, ensures the free flow of ideas and content sharing and gives freedom to choose between different technologies. A connectionist-based course which promotes connectedness, interactivity, autonomy, diversity, and openness are also highly important characteristics for an efficient online language learning environment because they are key factors for a successful language learning (Perifanou, 2014; 2015).

A number of learner-centered and social-constructivist & connectivist learning theories and pedagogical approaches have inspired the design of the OPENLang Network's Pedagogical Framework. In the next section of this report, we will present and analyze the OPENLang Network's Design Framework that is theoretically supported by OPENLang Network's Pedagogical Framework.

O2-T3. Development of the OPENLang Network's Design Framework

2.3.1 Introduction

In this last section of this report, we will present the OPENLang Network Design Framework analysing in detail the main goals, objectives, content and services of the OPENLang Network language learning platform. The research findings of the OPENLang Network's needs analysis survey as well the literature review on existing pedagogical theories, frameworks and models applied in Online Language Education (presented in the first section of this report) leaded to the creation of the OPENLang Network's Pedagogical Framework at first stage and then at a second stage to the creation of the OPENLang Network's Design Framework. The developers took under consideration the feedback that was provided by the interviews and the questionnaires in order to develop the framework and the platform for the OPENLang Network.

As we analyzed in the previous section of this report, the philosophy behind the design of the OPENLang Network Pedagogical Framework was inspired by a number of learning theories (SLA, FLL, E-Learning) that could support online language learning in open learning communities addressing the pedagogical needs of a specific target group which was the Erasmus+ KA1 mobility participants involved in long-term mobility activities (HE students and staff, VET, learners/staff, adult and school education staff, Youth learners and workers).

The findings of the OPENLang Network survey have confirmed previous research findings that have shown that the development of language proficiency and learning a different culture are the main reasons to participate in an Erasmus+ mobility (Van Maele et al., 2016; Aslan & Jacobs, 2014; Borghetti & Beaven, 2017; Llanes et al., 2012, Gallarza et al., 2019). Other research findings that were also really important for the design of the OPENLang Pedagogical Framework include the desire of the participants to mainly advance their listening and communication skills as well as their general vocabulary, and secondarily, to promote social learning, intercultural communication and networking in an interactive multimedia environment.

The creation of the OPENLang Network Pedagogical Framework was inspired by a number of learner-centered and social-constructivist & connectivist learning theories and pedagogical approaches such as Autonomous learning, Self-regulated learning, Personalised learning, Collaborative learning, Cooperative learning, Community learning, theory of transactional distance, Language Communication theory, Second Language Acquisition theories (SLA), Interaction and Socio-cultural theory, Social Constructivism and Connectivism, Activity theory, Situated Learning theory, Language Acquisition Theory, Tandem Learning theory, Wenger's Theory of communities of practice. As it is mentioned in the previous sections, learner's participation and interaction is in the centre and of crucial importance for successful language learning, whether it"s face-to-face, blended or fully online teaching. This is because "language learning is a skill-based process rather than a content-based one. Skills development, such as the acquisition of speaking and listening skills, require constant synchronous interaction in the target language" (Wang & Chen, 2009, p. 5).

For that reason, the learner in the OPENLang Network language learning environment is seen as being at the center of the learning process and has multiple opportunities to interact either alone with the open educational material content (OERs), or with other peers and/or the teacher, in small groups, or in a one-to-one pair, or even in community. Interaction-based learning is a cornerstone of many socially oriented approaches to L2 learning" (Wang & Vásquez, 2012; p. 420). For that reason, designing an open language learning environment which could provide multiple types of Interaction to learners who belong in a community of language practice was a big challenge. The creation of both the OPENLang Network Pedagogical and the Design Framework took under consideration the learning needs of the target group of participants but also the need for an online, open and highly interactive and collaborative language learning environment supported by the most suitable technological services. Furthermore, the creation of the OPENLang Network Design Framework has been strongly inspired by the Theory-Based Design Framework (Dubbagh, 2005), the Framework for Sociability and Usability (Preece, 2001) and the MOIILLE Framework (Perifanou, 2016a, b).

2.3.2 Theory-Based Design Framework (Dubbagh, 2005)

Dubbagh (2005) argues that in order to design an effective and meaningful e-learning environment it is needed a grounded design approach. She emphasizes that "the systematic and transformative interaction between pedagogical models, instructional strategies, and learning technologies consequently allows the e-learning developer or instructor to adopt a grounded design approach. The e-learning developer or instructor must have a reflexive awareness of the theoretical basis underlying instructional design and the ability to link theory to practice in a systematic manner". She supports the pedagogical models which are grounded in the situated cognition and constructivist views of knowledge and refers to the reconceptualization of distance learning as "an open and distributed learning environment that utilizes pedagogical tools, enabled by Internet and Web-based technologies, to facilitate learning and knowledge building through meaningful action and interaction". Taking these factors under consideration, e-learning developers and instructors have in their position the theoretical knowledge and the tools to create their own e-Learning solutions in order to organize and coordinate distributed forms of interaction as well to promote meaningful knowledge acquisition. According to the Theory-Based Design Framework (Dubbagh, 2005), there are three key components that all together can promote meaningful learning and interaction (Fig. 6):
(1) pedagogical models or constructs,
(2) instructional and learning strategies, and
(3) pedagogical tools or online learning technologies (i.e., Internet and Web-based technologies).

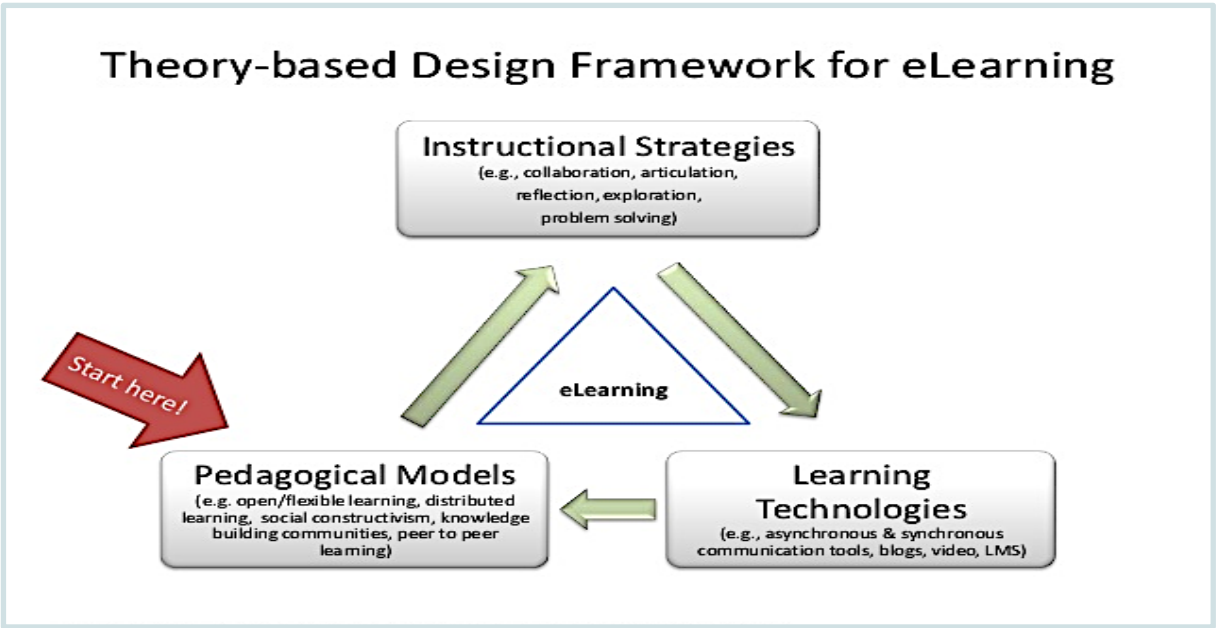

Figure 6. A Theory-Based Design Framework for E-Learning (Dubbagh, 2005)

Pedagogical models for elearning (i.e., open flexible learning, distributed learning, social constructivism, learning communities, communities of practice, knowledge building communities) are the mechanisms by which we link theory to practice and lead to the specification of instructional strategies which is the second key component of this framework. Instructional strategies (i.e., authentic learning, problem solving, role playing, reflection, collaboration, social negotiation, supporting multiple perspectives, scaffolding) are what instructors or instructional systems do to facilitate student learning and operationalize pedagogical models that means that they put them into practice. Dubbagh (2005) argues that the instructional strategies are therefore derived from pedagogical models, which in turn are derived from learning theory. Both instructional and learning strategies are in turn subsequently enabled or enacted through the use of learning technologies (i.e., asynchronous and synchronous communication tools, hypermedia & multimedia tools, Web authoring tools, course management systems). With the advance of new technologies and the new affordances that these technologies offer, pedagogical practices and social structures are in continuous transformation. This transformative interaction is affecting the design of e-learning and this theory-based or grounded design framework is proposed to educators and instructional designers as a guide for the design of e-learning.

The OPENLang Network Design Framework has adopted the three basic components proposed by Dubbagh (2005) in the Theory-Based Design Framework for E-Learning as well as the concept of their transformative and continuous interaction.

2.3.3. The MOIILE Framework (Perifanou, 2016)

Another framework that has inspired the creation of the OPENLang Network Pedagogical and Design Framework was the Massive Open Online Interactive Language Learning Environment (MOILLE) Framework (Perifanou, 2016). This is a framework that was created in order to guide instructional designers, language teachers or developers who have interest in designing or evaluating a successful online Language Learning environment that has a massive character. This framework supports the individual as well as the collective/community learning and can be used as either a checklist for designers or a list of evaluation criteria. The MOILLE Framework proposes six (6) different dimensions (Fig. 7) that should be considered

carefully one by one before the design of an online language learning environment of massive scale.

1) Content: Open, authentic, various and highly interactive (multimedia) language learning material is recommended as it can promote all basic language skills and support cultural awareness.

2) Assessment: A MOILLE should promote multiple assessment modes (i.e. self, peer-to-peer, student-teacher, open, automated) and approaches (multiple choices, matching, and true-false tests, open comments, etc.) aligned with learning goals to assess student learning in all the phases of the learning process (before, during, and after instruction). A placement test is also important in order to identify the learners" language level. Data mining and Learning Analytics tools that monitor the learning process can evaluate learners' participation and advance their learning success. The use of badges for completion of activities could also engage learners' participation.

3) Pedagogy: Active communication and continuous interaction between all the participants (peer-peer, student-teacher, open class community) is highly important for an efficient online language learning environment. Furthermore, various Second Language Acquisition (SLA) pedagogical theories, classic learning theories that promote autonomous learning (Autonomous, Self-paced, Self-regulated Learning and Reflection), collaboration (social constructivism), networking and collective intelligence (connectivism) are recommended to be taken under consideration. Gamified learning process via badges/certifications is also recommended as it increases motivation.

4) Community: One of the major objectives of a MOILLE is the creation of a social community supported by useful digital tools (social media – third party tools integration & other tech tools) that could also reach an authentic audience as this is really important for the development and practice of all basic language skills.

5) Technical Infrastructure: The technical issues to be considered are many; Variety of tools (for synchronous and asynchronous communication) to support the learning process and learning assessment, an educational platform that can promote an adaptive and personalised language learning experience, and finally, usability, interoperability and security of the platform.

6) Financial Issues: Time, effort and money are needed in order to build a successful MOILLE. Charges for the platform's maintenance, tutoring and other expenses need to be considered.

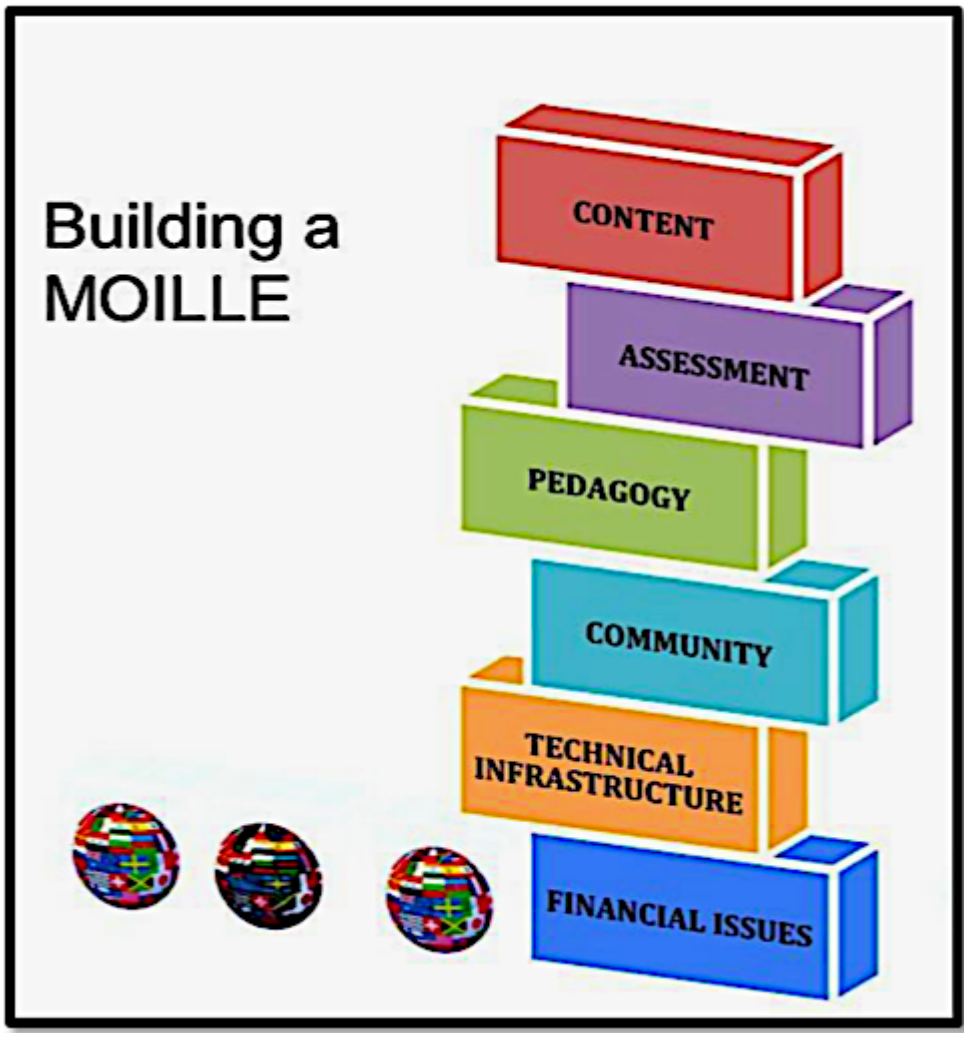

Figure 7. The Massive Open Online Interactive Language Learning Environment (MOILLE) Framework (Perifanou, 2016)

Most of the dimensions of the MOILLE Framework have been considered for the creation of the OPENLang Network Design Framework. In addition, they will be exploited for the creation of an assessment tool that will be used to control the implementation of the OPENLang Network open language learning environment.

2.3.4 The Framework for Sociability and Usability (Preece, 2001)

Dimensions of the *framework for Sociability and Usability* have been also considered for the creation of the OPENLang Network Design Framework and will be also used as an assessment tool to better support the implementation of the OPENLang Network open language learning environment.

According to Preece (2000), Sociability and Usability are highly important factors in building online communities. In order to evaluate the success of an online community it is important to measure Sociability and Usability. *Usability* explores mostly how users interact with technology while *sociability* focuses on the way that members of a community interact with each other via the supporting technology. The focus of usability is therefore interaction between the human and computer interface. The focus of sociability is human-to-human interaction supported by technology. In practice, usability measures dialogue and social interaction support, information design, navigation and access, while sociability measures interactivity, reciprocity, quality of contribution. In order for an online learning community to reach a good level of sociability it is important to give attention to three basic elements: a) the purpose of the online community; the different members of the online community as well the community's policies and codes of behaviour. Measures of sociability include numbers of participants, amount of reciprocity, trustworthiness and others. Measures of usability include numbers of errors, productivity, user satisfaction and others. The sociability and usability framework helps to structure the process of identifying determinants and deciding on measures. In addition, the type of community being evaluated and who needs the data influences which measures are collected and how the data will be interpreted.

2.3.5 OPENLang Network Design Framework: dimensions and process

The OPENLang Network Design Framework has been created in order to offer the theoretical basis for the development of an *open* and *highly interactive* and *collaborative language learning* environment in order to address the linguistic and cultural needs of the Erasmus+ mobility participants during all the phases of their mobility. This environment has adopted the characteristics of a Community of Practice (CoP) for adults' language learners and is supported by a multiservice web and mobile-based platform which aims to offer a variety of e-services that will promote multiple modes of interaction as well as the use and sharing of open linguistic and and cultural material (OERs).

As it is presented in the following Table 5, the OPENLang Network Design Framework has adopted the three basic components of the Theory-Based Design Framework for E-Learning: a) *Pedagogical Approaches & Models*; b) *Instructional Strategies*; c) *Learning Technologies*.

OPENLang Network Design Framework	
Basic Dimensions	**Elements of the Basic Dimensions**
Pedagogical Approaches & Models	• Personalised, Self-paced & Self-regulated Learning • Open & Flexible Learning • Distributed Learning • Social constructivism • Collaborative knowledge building, Community learning & CoP (Teachers & Learners) • Connectivism
Instructional Strategies	• Peer to Peer Learning / Tandem Learning, Cooperative and Collaborative learning, Role-playing, Debate, Group discussion; • Scaffolding/ Guided Learning, Task-based Learning, Inquiry-based Learning, Simulation, Authentic learning; Game based learning; • Self-studying, Autonomous Learning, Portfolio development, Self-Reflection
Learning Technologies	<u>OPENLangNET Platform</u>: Open Learning Management System (Moodle) with Interactive Services: <u>Communication & Collaboration:</u> Community of registered teachers & learners supported by Synchronous & Asynchronous communication tools (i.e. Forum, Discussion Area, dashboards, personal networking) <u>Content:</u> • Databases of Language OERs, ICT OERs (open to users' contribution & supported by search engines) • Database of Teachers' Training OERs (OERs e-Toolkit, etc.)

	• Recommendation system (Matching teacher-learner or Learner-Learner, OERs to learners) <u>Assessment:</u> • Language Placement tests • Peer assessment • OERs assessment

Table 5. The OPENLang Network Design Framework

The design of the OPENLang Network open language learning environment is based on a pedagogically driven framework. We have started with the selection of the most appropriate pedagogical models and approaches used in online and interactive language learning based on the literature review that was presented in the previous sections of this report. We have chosen a blend of learner-centered and social-constructivist & connectivism theories that support specific pedagogical models and approaches (i.e. open flexible learning, self-regulated learning, distributed learning, social constructivism, connectivism, communities of practice) as they are presented in the Table 5. We have continued with the selection of suitable instructional strategies that put in practice the chosen pedagogical models and approaches (i.e. Peer to Peer Learning / Tandem Learning, Cooperative and Collaborative learning, Role-playing, Debate, Group discussion). Finally, we have decided on the learning technologies that could better support our pedagogical choices (i.e., Synchronous and Asynchronous Communication tools, Moodle). In other words, what oriented the design of the OPENLang Network online language learning environment was to define first the most suitable pedagogy, then the strategies that could put theory in practice in the most efficient way and, at last, the most adequate technologies that could enable the selected pedagogical models and approaches and strategies. This design working process is represented in the following diagram (Fig. 8) and Dubbagh's (2005) "transformative interaction" between the different dimensions is reflected. Each of the three dimensions is interconnected with the others and influences the choices made for each one separately.

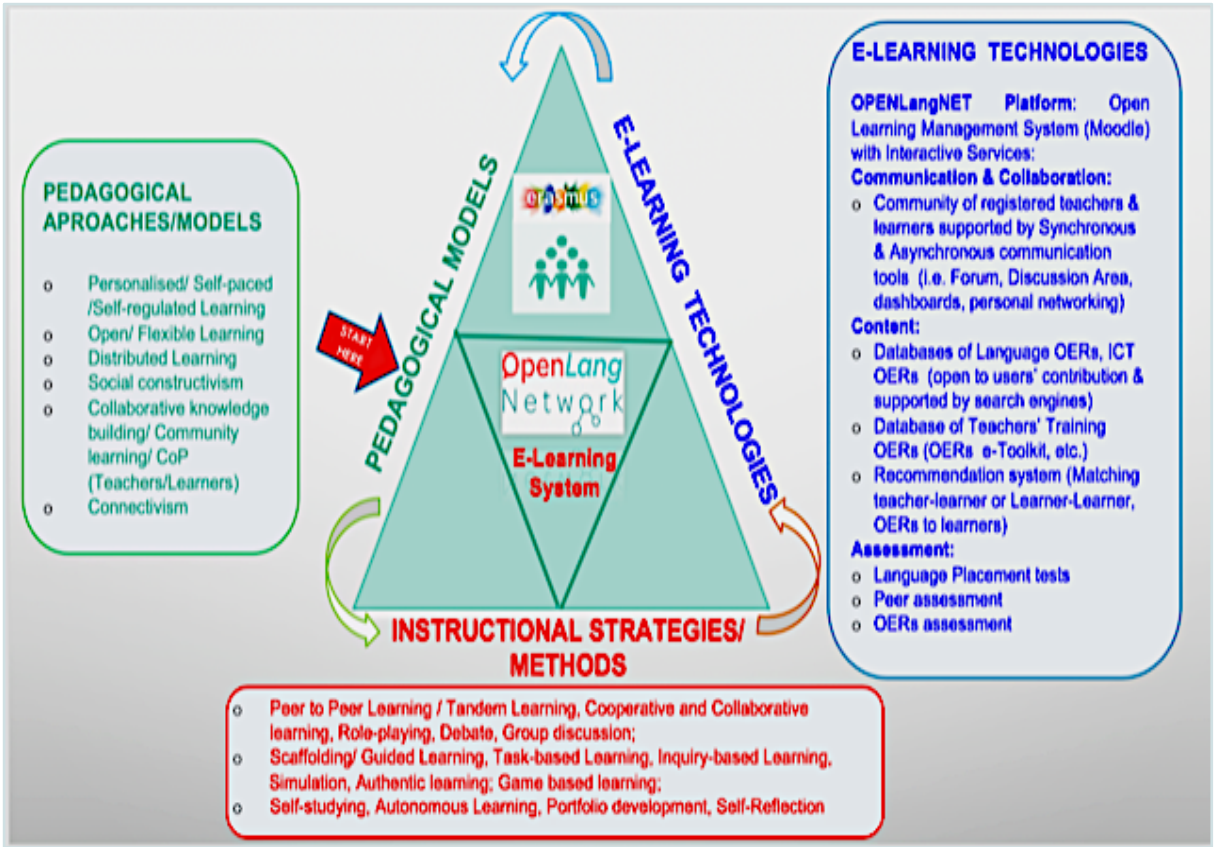

Figure 8. The OPENLang Network Design Framework

Practically, Erasmus+ learners are placed at the center of the OPENLang Network online language learning environment and are free to take their own personalised learning paths. They can select the mode of interaction and collaboration that they prefer (*autonomous, one-to-one, pair-to-pair, one-to-many)*, choose among the available tools and services offered by the platform, and control the amount of open material (OERs) they want to use, reuse, share as well as the duration of time that they need to spend for studying or practicing the target language or exploring a new culture.

The OPENLang Network online language learning environment is supported by Moodle, an open Learning Management System, which is maintained by the team of the Open University of UK. The interactive and adaptive platform aims to offer a variety of services to all Erasmus+ language learners during all phases of their mobility. Each service is added after a testing. More services may be added or others may change in order to address more needs of the users during the piloting of the platform. The services are the following:

1) *Self-Placement Tests for 24 EU languages:* Each learner will be asked to register, answer a short questionnaire and then take a placement test in one of the languages of his/her choice. Then he/she will know his/her language proficiency level.

2) *E-tandem Matching Service for 24 EU Languages Learning*: Each language learner will be able to select a tandem partner, a student or a teacher, who will be recommended by the Moodle system based on the info that each learner and teacher has provided in the questionnaire during his/her registration. The system will be also designed to do matching of more than one tandem pairs (max of 3 tandem pairs) who could be supported preferably by a teacher. Ideas about activities will be published on the discussion area by the consortium but every member of the OPENlang Network community will be able to propose topics for discussion during the meetings in tandem.

3) *An open & highly interactive forum*: In this discussion area all members of the OPENLang community will be able to interact with each other practicing their second language and discussing issues that can arise such as every day or culture issues, difficulties with their studies, and more. The forum will also have many interactive features (e.g., likes, followers, etc.)

4) *A personal member's dashboard*: In this area of the platform each member will be able to track his/her activities, the system's recommendations for networking/ communicating with other members, tandem meetings or OERs.

5) *An open and interactive database of language open educational resources (OERs)*: All members, either learners or teachers, of the OPENLang Network community will have free access to a number of open educational resources- OERs (lessons, courses, videos, vocabularies, etc.) and ICT tools that could be used in a language learning context. They will be able to create, use and share their own OERs. They would also evaluate or recommend them to other members as well.

Teachers who will be involved voluntarily in the OPENLang Network community will be able to have open access to:

6) An *OERs' e-toolkit* including a quality framework for language OERs;

7) An *Open Educational Practices (OEPs) e-Book*;

8) A language teachers' training *MOOC* on OERs' creation, sharing and use.

Teachers' professional development: all teachers who will voluntarily support this

initiative will have the possibility to attend the MOOC offered by the OPENLang Network and to participate in a number of activities that will broaden their professional network.

Furthermore, the use of *badges* will also be investigated as a way to motivate learners' participation since the gamification of learning can be highly motivational. In fact, gaming features are common in web 2.0 communities which focus on L2 practice (i.e *Babbel, Busuu, Duolingo*).

The OPENLang Network consortium has conducted pilots of the OPENLang Network platform and all its available services. The feedback received by all consortium members and the participants during the pilots was valuable and very positive. In the next short section, we report the major lessons learnt and we confirm that the success behind the OPENLang Network platform is massively connected to the OPENLang Network's Design Framework.

2. Piloting the OPENLang Network platform's e-services: Lessons Learned

OPENLang pilots

Running the OPENLang MOOC was a big challenge for the OPENLang Network team. A massive preparation was needed in order to create/find high quality material, and upload it on the platform. Moreover, it needed a big effort for disseminating the event and informing the participants for each step of the MOOC. More than 200 people have participated in the 3 pilots of the OPENLang Network services, 1 MOOC, 2 Tandem Learning workshops, OERs/OEPs contest for language teachers. The evaluation and feedback received was very helpful and positive as they gave high scores (4.5 out of 5.00) to all quality criteria and their comments were enthusiastic.

OPENLang platform

Many of the participants commented positively on the big variety of services offered by the OPENLang Network platform and the great way in which all these services are interconnected with each other and facilitate multiple ways of learning styles and needs. They also liked a lot the user-friendly design and the two proposed learning paths offered at the home page of the platform, one for language learners and one for language teachers. They also stated that the series of platform's services tutorials were really helpful.

The OPENLang Network Design Framework proved to be extremely helpful for the development of the platform because every service included in the platform was based on the scientific research that has been conducted in the context of this output.

Even though the feedback received during and after the pilots for the design of the platform and the pedagogical philosophy behind it were positive, it is still a big challenge to create and grow a community of practice for language learners and teachers. We believe that the advantage of this platform is the high quality of the content and the services that it offers. For that reason, we plan to continue the efforts to grow this community.

Tandem Language Learning

Another point that needs to be presented here is the great effort that was needed to design the pilots for the e-Tandem language e-service. We soon understood that the technical tools offered on the platform and the search service to find a tandem partner were not enough. For that reason, we enriched the tutorials and we have conducted research in order to design educational material to support the e-Tandem language learners during their Tandem language learning practices.

Table 6 was produced in the context of the design of the Tandem Learning activities and presents the different types of e-Tandem Language Learning activities.

Type of Activities (examples)	Description
Oral Activity: Free conversation on a specific cultural topic (cinema, art, local cuisine, etc.)	*E-Tandem* partners can choose a topic to discuss based on their linguistic and cultural interests. In e-*Tandem* sessions, the goals of the conversation are explicitly defined, because such interests are just as important as any other component of the interaction.
Collaborative project	*E-Tandem* partners can carry out collaborative projects of their choice concerning both languages.
Grammar Activity	*E-Tandem* partners can share grammar exercises, do the exercises together or even discuss grammar or syntax errors.
Written Activity: Authoring on a blog, wiki, discussion forum	*E-Tandem* partners can post their thoughts and opinions on the discussion forum or in a blog. In many *e-Tandem* sessions *e-Tandem* partners had to post an entry after each e-Tandem session.
Role Playing	*E-Tandem* partners can choose to do a r*ole-playing* activity and select from a list of real situations, and work on trying to achieve these tasks.
Games, Quizzes	*E-Tandem* partners can also have fun by playing Hangman, quizzes, or Kahoot!
Listening Comprehension Activity	*E-Tandem* partners can propose listening together to their favorite songs and discuss their meaning.
Portfolio (*Padlet, Google drive, etc.*)	*E-Tandem* partners can create their own portfolio where they can save digital material that they would like to use in the sessions with their e-Tandem language partner such as an image, a book, a film, etc.

Table 6. Different types of e-Tandem language learning activities (Perifanou, 2021)

Publications

All the steps for the design of the e-Tandem Language Learning activities and the preparation of the pilots can be found in the following publication.

Perifanou, M. (2021). Designing Language Activities For E-Tandem Learning in an Open Online Language Learning Environment Promoting Mediation, Intercultural and Linguistic Skills. In: Proceedings of the International Conference of Education, Research and Innovation ICERI, Seville, Spain, 8th - 10th of November, 2021.

Another publication related to the intellectual output II is the following:

Perifanou M., Economides A.A. (2021). The OPENLang Network Pedagogical Framework: Designing an Open and Collaborative Language Learning Environment for Erasmus+ KA1 Mobility Participants. In: Zaphiris P., Ioannou A. (eds) Learning and Collaboration Technologies: New Challenges and Learning Experiences. 23nd International Conference on Human-Computer Interaction, HCII 2021. Lecture Notes in Computer Science, vol 12784. Springer, Cham. https://doi.org/10.1007/978-3-030-77889-7_10

Conclusion

The research findings of the OPENLang Network's needs analysis survey as well the literature review on existing pedagogical theories, frameworks and models applied in Online Language Education (presented in the first section of this report) leaded to the creation of the OPENLang Network's Pedagogical Framework at first stage and then at a second stage to the creation of the OPENLang Network's Design Framework. The developers took under consideration the feedback that was provided by the interviews and the questionnaires in order to develop the framework and the platform for the OPENLang Network.

The OPENLang Network Design Framework has been created in order to offer the theoretical basis for the development of an open and highly interactive and collaborative language learning environment in order to address the linguistic and cultural needs of the Erasmus+ mobility participants during all the phases of their mobility. This environment has adopted the characteristics of a Community of Practice (CoP) for adults' language learners and is supported by a multiservice web and mobile-based platform which aims to offer a variety of e-services that will promote multiple modes of interaction, as well as the use and sharing of open linguistic and cultural material (OERs).

Even though the feedback received from the pilots of the OPENLang Network platform's services for the design of the platform and the pedagogical philosophy behind it were positive, it is still a big challenge to create and grow a community of practice for language learners and teachers. We believe that the major advantage of this platform is the high quality of the open content and the open services that it offers that could efficiently promote the support and growth of open communities of practice. For that reason, we plan to continue the efforts to grow this open language learning community of practice and disseminate all the high-quality materials produced.

References

Ala-Mutka, K., Punie, Y., & Redecker, C. (2008). I*CT for Learning, Innovation and Creativity – Policy Brief,* European Commission, Joint Research Centre, Institute for Prospective Technological Studies.

Ally, M. (2004). Foundations of educational theory for online learning. In T. Anderson & F. Ellouimi (Eds.), T*heory and practice of online learning*. Athabasca, AB, Canada: Athabasca University

Alonso, C. (2011). Learning diaries to foster learner autonomy in mixed-ability groups. T*ejuelo*, 11, 47–63.

Anderson, T., Annand, D., & Wark, N. (2005). The search for learning community in learner paced distance education: Or,'Having your cake and eating it, too!'. *Australasian Journal of Educational Technology*, 21(2).

Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. I*nternational Review of Research in Open and Distributed Learning*, 12(3), 80-97.

Anderson, T., & Dron, J. (2012). Learning technology through three generations of technology enhanced distance education pedagogy. Cognitivist / behaviourist pedagogy. *European Journal of Open Distance and E-Learning,* 2, 1–14.

Andrews, R. (2011). Does e-learning require a new theory of learning? Some initial thoughts. J*ournal for Educational Research Online*, 3(1), 104–121. https://www.pedocs.de/volltexte/2011/4684/pdf/JERO_2011_1_Andrews_Does_e_learning_require_a_new_theory_S104_D_A.pdf

Aparicio, M., Bacao, F., Oliveira, T., Universitario, I., Nova, D. L. I. I., & Lisboa, U. N. De. (2016). An e-Learning Theoretical Framework. 19, 292–307.

Appel, M. C. (1999). Tandem language learning by e-mail: Some basic principles and a case study. Trinity College Dublin, Centre for Language and Communication Studies.

Appel, R. (2000). Language, concepts and culture: old wine in new bottles? *Bilingualism: Language and Cognition*, 3(1), 5-6.

Appel, C., & Gilabert, R. (2002). Motivation and task performance in a task-based web-based tandem project. *ReCALL*, 14(1), 16-31.

Appel, C., & Mullen, T. (2000). Pedagogical considerations for a web-based tandem language learning environment. 34, 291–308.

Appel, C., & Mullen, T. (2002). A new tool for teachers and researchers involved in e-mail tandem language learning. *ReCALL*, 14(2), 195–208. https://doi.org/10.1017/S0958344002000228

Aslan, B., & Jacobs, D. B. (2014). Erasmus student mobility: Some good practices according to views of Ankara University exchange students. *Journal of Education and Future,* (5), 57.

Barker, 2002; Barker, P. (2002). On Being an Online Tutor. *Innovations in Education and Teaching International*, 39(1), 3-13.

Bates, A.W. (2005). *Technology, e-Learning and distance education* (2nd ed.). London: RoutledgeFalmer.

Bauman, U., Shelley, M., Murphy, L., & White, C. (2008). New challenges, the role of the tutor in the teaching of languages at a distance. *Distances et Savoirs,* 6(3), 365–392. https://doi.org/10.3166/ds.6.365-392

Bax, S. (2003). CALL - Past, present and future. System. Elsevier Ltd. https://doi.org/10.1016/S0346-251X(02)00071-4

Bednar, Cunningham, Duffy, and Perry (1991) Bednar, A. K., Cunningham, D., Duffy, T. M., & Perry, J. D. (2013). Theory into practice: How do we link? In *Constructivism and the Technology of Instruction: A Conversation* (pp. 17–34). Taylor and Francis. https://doi.org/10.4324/9780203461976

Beetham, H. (2004). *Review: developing e-learning models for the JISC practitioner communities*, A report for the JISC e-pedagogy programme, JISC.

Bennett, S., & Marsh, D. (2002). Are we expecting online tutors to run before they can walk? *Innovations in Education and Teaching International,* 39(1), 14-20.

Borghetti, C., & Beaven, A. (2017). Lingua francas and learning mobility: Reflections on students' attitudes and beliefs towards language learning and use. *International Journal of Applied Linguistics*, 27(1), 221-241.

Braga, D. B. (2007). Developing critical social awareness through digital literacy practices within the context of higher education in Brazil. *Language and Education,* 21(3), 180-196.

Brammerts, H. (1996). Language learning in tandem using the Internet. *Telecollaboration in foreign language learning*, 121-130.

Brammerts, H. (2003). Autonomous language learning in tandem: The development of a concept. In Lewis & Walker (eds.), 27-36.

Brown, A. L., & Campione, J. C. (1994). *Guided discovery in a community of learners*. The MIT Press.

Brown, H. (2000). *Principles of Language Learning and Teaching* (4th ed.). London: Longman Pearson Education Limited.

Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Philadelphia: Multilingual Matters Ltd.

Cavalari, S. M. S. (2019). 9A discussion on how teachers assess what foreign language students learn in telecollaboration. Telecollaboration and virtual exchange across disciplines: in service of social inclusion and global citizenship, 73.

Chapelle, C.A. (2009). The relationship between second language acqusition theory and computer- assisted language learning. *The Modern Language Journal,* 93, 741-753.

Chapelle, C. A., & Hegelheimer, V. (2013). The language teacher in the 21st century. In *New perspectives on CALL for second language classrooms* (pp. 311-328). Routledge.

Collis, B., & Moonen, J. (2002a). Flexible learning in a digital world. Open Learning: *The Journal of Open, Distance and e-Learning*, 17(3), 217-230.

Collis, B., & Moonen, J. (2002b). The contributing student: A pedagogy for flexible learning. *Computers in the Schools*, 19(3-4), 207-220.

Collis, B. and van der Wende, M. (2002). Models of Technology and Change in *Higher Education: An International Comparative Survey on the Current and Future Uses of ICT in Higher Education*. University of Twente: CHEPS.

Colpaert, J. (2004) 'Editorial: Transdisciplinarity', *Computer Assisted Language Learning*, 17(5): 459–472.

Compton, L. (2009). Preparing language teachers to teach language online: a look at skills, roles, and responsibilities. *Computer Assisted Language Learning*, 22(1), 73-99.

Conole, G., Ingraham, B., & Cook, B. (2003). Learning technology as a community of practice?.

Conole, G., Ehlers, U., Mundin, P., Veith, P., Connelly, T., & dos Santos, A. I. (2010a). Open Educational Practice Innovation and Quality Monitor.

Conole, G., Ehlers, U. D., Mundin, P., Santos, A. I., Connelly, T., Richter, T., ... & Carneiro, R. (2010b). Quality and innovation in open educational practice. *EDEN 2010 Annual Conference*, Valencia.

Corbett, F., & Spinello, E. (2020, January 1). Connectivism and leadership: harnessing a learning theory for the digital age to redefine leadership in the twenty-first century. Heliyon. Elsevier Ltd. https://doi.org/10.1016/j.heliyon.2020.e03250

Crandall, J. J. (1999). 14 Cooperative language learning and. Affect in language learning, 226.

Currier, S., Campbell, L. and Beetham, H. (2006). *JISC Pedagogical vocabularies project report 1: Pedagogical vocabularies review*, Bristol: JISC. <http://www.jisc.ac.uk/elp_vocabularies.html>

Cutrim Schmid, E., & Whyte, S. (2012). Interactive whiteboards in state school settings: Teacher responses to socio-constructivist hegemonies. *Language Learning & Technology*, 16(2), 65-86.

Davis & Rose, 2007; Davis, N., & Rose, R. (2007). Professional developments for virtual schooling and online learning. Retrieved 2 July 2010 from http://www.inacol.org/research/docs/NACOL_PDforVSandOlnLrng.pdf.

Dewey, John (1916). Essays in Experimental Logic. Chicago: University of Chicago Press

Dembo, M. H., Junge, L. G., & Lynch, R. (2006). Becoming a self-regulated learner: Implications for web-based education. Web-based learning: Theory, research, and practice, 185-202.

Dewey, J. (1916). *Democracy and education*. Project Gutenberg.

Dodd, C. (2001). Working in tandem: An Anglo-French project. Developing intercultural competence in practice, 162-175.

Donato, R. and McCormick, D. (1994). A sociocultural perspective on language learning strategies: The role of mediation, *The Modern Language Journal*, 78(4): 453–464.

Downes, S. (2012). *Connectivism and connective knowledge*. EdTech Books, https://edtechbooks.org/connectivism/

Doughty, C. (1987). Relating second-language acquisition theory to CALL research and application. In W.F. Smith (Ed.), *Modern media in foreign language education: Theory and implementation* (pp. 133–167). Lincolnwood, IL: National Textbook Company

Doughty, C. J. and Long, M. H. (2003). Optimal psycholinguistic environments for distance foreign lan- guage learning, *Language Learning & Technology*, 7(3): 50–80

Dabbagh, N. (2005). Pedagogical models for E-Learning: A theory-based design framework. *International journal of technology in teaching and learning*, 1(1), 25-44 Retrieved from https://www.researchgate.net/publication/252514924_Pedagogical_Models_for_E-Learning_A_Theory-Based_Design_Framework

Dyke, M., Conole, G., Ravenscroft, A., & de Freitas, S. (2007). Learning theory and its application to e-learning. *Contemporary perspectives in e-learning research: Themes, methods and impact on practice*, 41(4), 82-97.

Economides, A. A., & Perifanou, M. A. (2018). MOOC affordances model. In *IEEE Global Engineering Education Conference, EDUCON* (Vol. 2018-April, pp. 599–607). IEEE Computer Society. https://doi.org/10.1109/EDUCON.2018.8363285

Economides, A., & Perifanou, M. (2018). Dimensions of Openness in MOOCS & OERS. In *EDULEARN18 Proceedings* (Vol. 1, pp. 3684–3693). IATED. https://doi.org/10.21125/edulearn.2018.0942

Egbert, J., & Hanson-Smith, E. (1999). CALL environments: Research, practice, and critical issues. Alexandria, VA: Teachers of English to Speakers of Other Languages.

Hanson-Smith, E. (2003). A brief history of CALL theory. *CATESOL Journal*, 15(1), 21-30

Felix, U. (2002). The web as a vehicle for constructivist approaches in language teaching, *ReCALL*, 14(1): 2–15.

Felix, U. (2005). Analysing recent CALL effectiveness research—towards a common agenda. *Computer assisted language learning,* 18(1-2), 1-32.

Garrison, D. R., & Arbaugh, J. B. (2007). Researching the community of inquiry framework: Review, issues, and future directions. *The Internet and higher education,* 10(3), 157-172.

Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *The internet and higher education*, 13(1-2), 5-9.

Gallarza, M. G., Fayos, T., Currás, R., Servera, D., & Arteaga, F. (2019). What Erasmus students do expect from their abroad experience? A multidimensional scale tested for the case of Spain. *International Journal of Educational Management*.

Gass, S. M., & Selinker, L. (2008). *Second language acquisition: An introductory course* (3rd ed.). New York and London: Routledge.

Greeno, J. G., Collins, A. M., & Resnick, L. B. (1996). "Cognition and Learning". In D. Berliner and R. Calfee (Eds.), *Handbook of Educational Psychology*. (pp. 15-46). New York: Simon & Schuster Macmillan.

Guichon, N. (2010). Preparatory study for the design of a desktop videoconferencing platform for synchronous language teaching. *Computer Assisted Language Learning*, 23(2), 169-182.

Guri-Rosenblit, S. (2005). *"Distance education" and "e-learning": Not the same thing. Higher Education*. Kluwer Academic Publishers. https://doi.org/10.1007/s10734-004-0040-0

Hadwin, A. F., Oshige, M., Gres, C. L. Z., & Winne, P. H. (2010). Innovative ways for using gStudy to orchestrate and research social aspects of self-regulated learning. *Computers in Human Behavior*, 26(5), 794-805

Hampel, R., & Hauck, M. (2006). Computer-mediated language learning: Making meaning in multimodal virtual learning spaces. *JALT CALL Journal*, 2(2), 3-18.*y.*

Hampel & Stickler (2005), Hampel, R., & Stickler, U. (2005). New skills for new classrooms: Training tutors to teach languages online. *Computer Assisted Language Learning*, 18(4), 311-326.

Hoven, D. (1997). *Improving the management of flow of control in computer-assisted listening comprehension tasks for second and foreign language*. Unpublished doctoral dissertation, University of Queensland, Brisbane, Australia.

Hoven, D. (1999). A model for listening and viewing comprehension in multimedia environments. *Language Learning & Technology*, 3(1), 88-103.

Hubbard, P. (2009). Developing CALL theory: A new frontier, in M. Thomas (ed), *New Frontiers in CALL: Negotiating Diversity*, Japan: JALT CALL SIG: 1–6.

Hubbard, P., & Levy, M. (2006). Introductions. In P. Hubbard &M. Levy (Eds.), *Teacher education in CALL* (pp. ix–xi). Philadelphia: John Benjamins Publishing Company.

Hubbard, P. & Levy, M. (2016). Theory in computer-assisted language learning research and practice. The Routledge Handbook of Language Learning and Technology Routledge.

Hutchby, I. (2001) *Conversation and Technology: From the Telephone to the Internet,* Malden, MA: Blackwell.

Johnson, D. W., & Johnson, R. T. (1991). *Cooperative learning and classroom and school climate*.

Johnson, D. & Johnson, R. (1993). What we know about cooperative learning at the college level. *Cooperative Learning* , 13(3); also http://www2.emc.maricopa.edu/innovation/CCL/ whatweknow.htm

Johnson, G. M. (2006). Synchronous and asynchronous text-based CMC in educational contexts: A review of recent research. *TechTrends*, 50(4), 46-53.

Jonassen, D. H. (2006a). A constructivist's perspective on functional contextualism. *Educational Technology Research and Development*, 43-47.

Jonassen, D. H. (2006b). On the role of concepts in learning and instructional design. *Educational Technology Research and Development*, 54(2), 177-196.

Jones, C. M., & Youngs, B. L. (2006). Teacher preparation for online language instruction. *Teacher education in CALL*, 267-282.

Kern, R., Ware, P., & Warschauer, M. (2004). Crossing frontiers: New directions in online pedagogy and research. *Annual Review of Applied Linguistics*, 24, 243-260

Kessler, G. (2006). Assessing CALL teacher training: What are we doing and what we could do better? In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 23–44). Philadelphia: John Benjamins.

Kolb, D. (1984). *Experiential Learning: Experience as the source of learning and development*, Englewood Cliffs, NJ: Prentice Hall.

Kosmas, P., Parmaxi, A., Perifanou, M., Economides, A., & Zaphiris, P. (2020). Creating the profile of participants in mobility activities in the context of Erasmus+: Motivations, perceptions, and linguistic needs. In: Zaphiris P., Ioannou A. (eds) *Learning and Collaboration Technologies. Designing, Developing and Deploying Learning Experiences. Proceedings of the 22nd HCI International 2020 (International Conference on Human-Computer Interaction)*, Copenhagen, Denmark, 19-24 July. Lecture Notes in Computer Science, vol 12205. Springer, Cham. DOI: 10.1007/978-3-030-50513-4_37

Kosmas, P., Parmaxi, A., Perifanou, M., & Economides, A.A. (2021). Open Educational Resources for language education: Towards the development of an e-toolkit. In: Zaphiris P., Ioannou A. (eds) *Learning and Collaboration Technologies: New Challenges and Learning Experiences. 23rd International Conference on Human-Computer Interaction (HCII) 2021*, 24-29 July, Washington

Krashen, S. (1982). *Principles and practice in second language acquisition*.

Kuo, Y. C., Walker, A. E., Schroder, K. E. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *Internet and Higher Education*, 20, 35–50.

Kuuti, K. (1996). Activity theory as a potential framework for human-computer interaction research. Context and consciousness: *Activity theory and human-computer interaction*, 2, 17-44.

Lamy M.-N., Hampel R., (2007). *Online Communication in Language teaching and Learning*, Basingstoke, Palgrave McMillan, 2007

Lantolf, J. 8c Appel, G.(Eds.).(1994). *Vygotshyan approaches to second language acquisition*. Norwood, NJ: Ablex.

Lantolf, J.-P. (2000) *Sociocultural theory and second language learning*. Oxford: Oxford University Press.

Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of learning technologies.* 2nd ed. London: Routledge Falmer

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cam- bridge & New York: Cambridge University Press.

Leclercq, D., & Poumay, M. (2005). The 8 learning Events Model and its principles (Release 2005-1).

Lee, J. F., & VanPatten, B. (1995). Making Communicative Language Teaching Happen. Volume 1: Directions for Language Learning and Teaching. McGraw-Hill, Inc., 860 Taylor Station Rd., Blacklick, OH 43004-0545; toll-free: 800-722-4726.

Levy, M. (2009). Technologies in use for second language learning. *The modern language journal*, 93, 769-782.

Hubbard, P., & Levy, M. (2016). Theory in computer-assisted language learning research and practice. In The Routledge handbook of language learning and technology (pp. 50-64). Routledge.

Little, D. (1991). *Learner autonomy 1: Definitions, issues and problems*. Dublin: Authentik.

Llanes, À., Tragant, E., & Serrano, R. (2012). The role of individual differences in a study abroad experience: The case of Erasmus students. *International Journal of Multilingualism*, 9(3), 318-342.

Long, M. H. (1981). Questions in foreigner talk discourse. *Language learning*, 31(1), 135-157.

Mason, R., & Rennie, F. (2006). *Elearning: The Key concepts*. Oxon, UK: Routledge

Mayes, T., & De Freitas, S. (2004). Review of e-learning theories, frameworks and models. https://pureportal.coventry.ac.uk/files/4001012/Review%20of%20e-learning%20theories.pdf

Mayes, T., & de Freitas, S. (2013). Technology-enhanced learning: The role of theory. In *Rethinking pedagogy for a digital age* (pp. 41-54). Routledge

Mayes, J. T., & Fowler, C. J. (1999). Learning technology and usability: a framework for understanding courseware. *Interacting with computers,* 11(5), 485-497.

Mayes, T., & Fowler, C. (2006). Learners, learning literacy and the pedagogy of e-learning. *Digital literacies for learning*, 26-33.

McLoughlin, C. & Lee, M.J. (2010). Personalised and self regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology* 2010, 26(1), 28-43

McLoughlin, C., & Oliver, R. (1999). Pedagogic roles and dynamics in telematics environments. In M. Selinger and J. Pearson (Eds.), *Telematics in Education: Trends and Issues* (pp. 32-50). Kidlington, Oxford: Pergamon

Merrill, M.D. (2002). First principles of instruction. *Educational Technology Research and Development,* 50(3): 43–59.

Morley, J., & Truscott, S. (2006). Incorporating peer assessment into tandem learning. *Language learning journal*, 33(1), 53-58.

Mullen, T., Appel, C., & Shanklin, T. (2009). Skype-based tandem language learning and web 2.0. In *Handbook of Research on Web 2.0 and Second Language Learning* (pp. 101–118). IGI Global. https://doi.org/10.4018/978-1-60566-190-2.ch006

Naidu, S. (2008). Enabling time, pace, and place independence. In J. M. Spector, M. D. Merill, J. Merrienboer, & M. P. Driscoll (Eds.), *Handbook of research on*

educational communications and technology (pp.259-268). New York: Lawrence Erlbaum Associates.

Natt och Dag, K., 2017. A scholar-practitioner perspective on a leadership development program in health care: integrating connectivism theory. *Adv. Develop. Hum. Resources, 19*(3), 295-313.

Nazarenko, A. (2019). Learning Languages via Telecollaboration : "Variation on the Theme." In *12th International Conference Innovation in Language Learning* (pp. 160–164). Filodiritto Editore. Retrieved from https://conference.pixel-online.net/ICT4LL/files/ict4ll/ed0012/FP/6121-ICT4208-FP-ICT4LL12.pdf

Nunan, D. (1992). *Research methods in language teaching*. Cambridge: Cambridge University Press.

O'Rourke, B. (2013). Form-focused Interaction in Online Tandem Learning. *CALICO Journal*, 22(3), 433–466. https://doi.org/10.1558/cj.v22i3.433-466

Plass, J. and Jones, L. (2005) 'Multimedia learning in second language acquisition', in R. Mayer (ed), *The Cambridge Handbook of Multimedia Learning*, Cambridge, MA: Cambridge University Press.

Perifanou, M. (2010). Using iphone as my "Personal Mobile Language Learning Environment": an exploration and classification of language learning possibilities. In *PLE Conference*.

Perifanou, M. A. (2014a). PLEs & MOOCs in Language Learning Context: A challenging connection. *5th International Conference on Personal Learning Environments,* (March 2013). Retrieved from http://pleconf.org/2014/files/2014/06/paper-34.pdf

Perifanou, M. A. (2014b). How to design and evaluate a Massive Open Online Course (MOOC) for language learning. In *Conference proceedings of» eLearning and Software for Education «(eLSE)* (No. 01, pp. 283-290). " Carol I" National Defence University Publishing House.

Perifanou, M. (2015). Personalized MOOCs for language learning: A challenging proposal. *ELearning papers,* (45), 1.

Perifanou, M. (2016a). Worldwide state of language MOOCs. CALL Communities and Culture – Short Papers from *EUROCALL 2016*, 2016, 386–390. https://doi.org/10.14705/rpnet.2016.eurocall2016.593

Perifanou, M. A. (2016b). Key factors for designing a successful massive open online interactive language learning environment (MOILLE). IX(1), 89–104.

Perifanou, M. & Economides, A.A. (2014). MOOCs for foreign language learning: An effort to explore and evaluate the first practices. In: *Proceedings of the 8th International Technology, Education and Development Conference (INTED)*, 10th - 12th March, Valencia, Spain. IATED. ISBN: 978-84-616-8412-0. ISSN: 2340-1079

Perifanou, M. (2021). Designing Language Activities For E-Tandem Learning in an Open Online Language Learning Environment Promoting Mediation, Intercultural And Linguistic Skills. In: Proceedings of the International Conference of Education, Research and Innovation ICERI, Seville, Spain, 8th - 10th of November, 2021.

Perifanou, M., Kosmas, P., Parmaxi, A. & Economides, A.A. (2021). The challenge of creating the OPENLang Network's online open database of 24 European language placements tests. In: *Proceedings of the 15th annual International Technology, Education and Development Conference (INTED) 2021*, 8-9 March, IATED. DOI: 10.21125/inted.2021.1285.

Plass, J. L., & Jones, L. C. (2005). Multimedia Learning in Second Language Acquisition. In R. E. Mayer (Ed.), T*he Cambridge handbook of multimedia learning* (pp. 467–488). Cambridge University Press. https://doi.org/10.1017/CBO9780511816819.030

Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. *Online Learning Journal,* 21(3), 166–190. https://doi.org/10.24059/olj.v21i3.1225

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. Journal of educational psychology, 92(3), 544.

Pomino, J., & Gil-Salom, D. (2016). Integrating E-tandem in Higher Education. *Procedia - Social and Behavioral Sciences,* 228, 668–673. https://doi.org/10.1016/j.sbspro.2016.07.102

Preece, J. (2000) O*nline communities: designing usability, supporting sociability.* Chichester: John Wliey and Sons

Preece, J. (2001). Sociability and usability in online communities: determining and measuring success. Behaviour & Information Technology, VoL. 20, No. 5, 347-356

Ravenscroft, A. (2004). Towards highly communicative eLearning communities: Developing a socio-cultural framework for cognitive change. *Cyberspace Education*. Routledge, 130-145.

Ravenscroft, A. (2011). Dialogue and connectivism: A new approach to understanding and promoting dialogue-rich networked learning. *International Review of Research in Open and Distributed Learning*, 12(3), 139-160.

Roblyer, M. D., & Doering, A. H. (2010). Theory and practice: foundations for effective technology integration. Integrating educational technology into teaching, 3.

Ravenscroft, A. (2003). From conditioning to learning communities: implications of fifty years of research in e-learning interaction design, *ALT-J,* 11(3), 4-18.

Salaberry, M. r. (2001). the use of technology for second language learning and teaching: a retrospective. *The Modern Language Journal,* 85, 39-56.

Salmon, G. (2003). E-*moderating: The key to teaching and learning online*. Psychology Press.

Shin, N. (2002). Beyond interaction: the relational construct of 'Transactional Presence.' *Open Learning*, 17(2), 121–137. https://doi.org/10.1080/0268051022014688

Siemens, G. (2005). Connectivism: A Learning Theory for the Digital Age, *International Journal of Instructional Technology and Distance Learning*, Vol. 2 No. 1, Jan 2005 Available at: http://www.itdl.org/Journal/Jan_05/article01.htm

Sun, S. Y. H. (2011). Online language teaching: The pedagogical challenges. *Knowledge Management & E-Learning: An International Journal*, 3(3), 428-447.

Telles, J. A. (2012). Teletandem: Transculturality and identity in webcam interactions in foreign languages. In *Conference Proceedings, International Conference ICT for Language Learning* (pp. 20–21). Retrieved from www.teletandembrasil.org

Telles, J. A., Zakir, M. de A., & Funo, L. B. A. (2015). Teletandem e episódios relacionados a cultura. *DELTA Documentacao de Estudos Em Linguistica Teorica e Aplicada*, 31(2), 359–389. https://doi.org/10.1590/0102-445084549183239327

Thorpe, M. (2002). Rethinking learner support: The challenge of collaborative online learning. *Open Learning: The Journal of Open, Distance and e-Learning,* 17(2), 105-119.

Tudor, I. (2003). learning to live with complexity: towards an ecological perspective on language teaching. *System*, 31, 1-12.

Van Maele, J., Vassilicos, B., & Borghetti, C. (2016). Mobile students' appraisals of keys to a successful stay abroad experience: Hints from the IEREST project. *Language and Intercultural Communication,* 16(3), 384-401.

Ushioda, E. (2000). Tandem language learning via e-mail: From motivation to autonomy. *ReCALL*, 12(2), 121-128

Vassallo, M. L., & Telles, J. A. (2006). Foreign language learning in-tandem: Theoretical principles and research perspectives. *The especialist*, 27(1).

Verpoorten, D., Poumay, M., & Leclercq, D. (2005). The 8 Learning Events Model (8LEM): A Pedagogic Conceptual Framework for the Design of Dedicated (and Generic?) Scenarios. In *CELDA* (pp. 503-508).

Vygotsky, L. (1978). *Mind in society. The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wang, Y. (2004). Supporting synchronous distance learning with desktop videoconferencing. *Language Learning & technology,* 8(3), 90-121.

Wang, Y. C. (2014). Using wikis to facilitate interaction and collaboration among EFL learners: A social constructivist approach to language teaching. *System*, 42, 383-390.

Wang, Y., & Chen, N.-S. (2009). Criteria for evaluating synchronous learning management system: arguments from the distance language classroom. *Computer Assisted Language Learning*, 22(1), 1-18

Wang, S., & Vásquez, C. (2012). Web 2.0 and second language learning: What does the research tell us?. *CALICO journal*, 29(3), 412-430.

Wang, S., & Vásquez, C. (2014). The effect of target language use in social media on intermediate-level Chinese language learners' writing performance. *CALICO journal,* 31(1), 78-102.

Warschauer, M. (1996). Computer assisted language learning: An introduction. In S Fotos (Ed.), *Multimedia language teaching*. Tokyo: Logos International.

Warschauer, M. (1998). Researching technology in TESOL: Determinist, instrumental, and critical approaches. *TESOL quarterly*, 32(4), 757-761.

Warschauer, M. (2000). The changing global economy and the future of English teaching. *TESOL quarterly,* 34(3), 511-535.

Warschauer, M. (2005). Sociocultural perspectives on CALL. CALL research perspectives, 41-51.

Warschauer, M. (2009). Foreword. In M. Thomas (Ed.), *Handbook of research on web 2.0 and second language learning*. Hershey, NY: Information Science Reference.

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems thinker,* 9(5), 2-3.

White, C. (2003). *Language learning in distance education.* Cambridge: Cambridge University Press.

Whyte, S. (2014). Bridging the gaps: Using social media to develop techno-pedagogical competences in pre-service language teacher education, Recherche et pratiques pédagogiques en langues de spécialité [Online], Vol. XXXIII N° 2 | 2014, URL : http:// journals.openedition.org/apliut/4432 ; DOI : 10.4000/apliut.4432

Wilson & Stacey, 2004, Wilson, G., & Stacey, E. (2004). Online interaction impacts on learning: teaching the teachers to teach online. *Australasian Journal of Educational Technology*, 20(1), 33-48.

Woodin, J. (2001). Tandem learning as an intercultural activity. Developing intercultural competence in practice, 1, 189-202.

Zhang, S. (2016). Learning Through a CMC-Based Tandem Project with Native Speakers: A Descriptive Study of Beginning CFL Learners. *Journal of Technology and Chinese Language Teaching*, 7(2), 58.

Zhang, Y. (2010). Cooperative Language Learning and Foreign Language Learning and Teaching. *Journal of Language Teaching and Research*, Vol. 1, No. 1, pp. 81-83, ACADEMY PUBLISHER Manufactured in Finland. doi:10.4304/jltr.1.1.81-83

Zimmerman, Barry J., 2000. Self-Regulatory Cycles of Learning. In: Gerald A. Straka (Ed.): *Conceptions of Self-Directed Learning*. Münster: Waxmann, 221 - 234.

Grant Agreement 2018-1-EL01-KA203-047967