English as a foreign language teachers' technology

professional development through online communities of

practice: A case study

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Abstract

An online community of practice (OCoP) is a group of people, who are brought together by a shared interest and with the aim of deepening their understanding of an area of knowledge through regular interactions facilitated by computer mediated communication (CMC) tools. In response to critiques of current professional development (PD) approaches such as workshops and cascade training which are conducted in short periods of time allowing for only limited follow up and feedback opportunities, OCoPs can be beneficial and a viable alternative for teacher PD. This is because an OCoP potentially provides teachers with those elements of effective PD, cited in the literature, such as; collaboration, opportunities for mentoring, and sustainability over time. However, research on adopting an OCoP approach for teacher PD has been limited. Therefore, conducted within the context of English as a foreign language (EFL) teaching, the present study aimed to 1) investigate EFL teachers' PD in learning how to integrate technology in their teaching and 2) identify what factors contribute towards creating successful OCoPs. The Webheads in Action (WiA) community has been chosen as a case for this study since WiA has previously been established to be an OCoP in which EFL teachers from different countries participate. A mixed methods research strategy was adopted which combined questionnaires and interviews. Initially, the questionnaire was administered to 69 members of the community. 24 of those members (4 core, 9 active, and 11 peripheral) participated in follow up interviews. Additionally, members' interactions in the public group page were collated over a period of nine months in order to triangulate findings. The results suggested that member participation in the community led to perceived technology professional development (TPD) of EFL teachers and that the more a member participated and collaborated with other members, the higher their reported TPD was; a finding which underlined the importance of co-construction of knowledge in this process. Two major themes emerged in relation to factors affecting member participation in this long standing OCoP. The first one was identified as the creation of a sense of belonging to the community which was achieved through various means such as having an initiation process, providing an inclusive community environment, fostering trust through community norms, and meeting other members face-to-face. The second was dynamism inherent in the community which manifested itself as new topics that kept members interested and participating, and a flow of continuous member recruitment to the community. In conclusion, this study showed that OCoPs can be a viable alternative form of teacher PD and highlighted the importance of not only the professional but also the socio-affective dimension for designing and sustaining OCoPs.

Table of Contents

List of Tables

List of Figures

Dedication

This dissertation is lovingly dedicated to my late mother, Zehra Bostancıoğlu. You will always be remembered.

Acknowledgements

Author's Declaration

I hereby declare that the work contained in this thesis is my own and has not previously been published with the exception of the following publication (see below). Additionally, it has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

- Bostancioğlu, A. (2014, May). *EFL-TPACK: The development of a questionnaire to measure technology pedagogy and content knowledge (TPACK) of English as a foreign language (EFL) Teachers.* Paper presented at the EUROCALL Teacher Ed SIG, Nice, France. Retrieved from https://sites.google.com/site/teacheredsignice/programme/abstracts/efl-tpackquestionnaireforteachers

Chapter 1: Introduction

An online community of practice is more than a community of learners

but is a community that learns

(Schlager, Fusco, & Schank, 2002)

1.1.   Overview

This chapter introduces the research focus of this study by providing background information to the study (Section 1.2) and to the Webheads in Action community that has been studied as a case in this research (Section 1.3). The purpose and aims of the study are then considered and the rationale for the exploration of these issues is explained by highlighting the significance of the study (Section 1.4). Next, the research approach followed in the study is described (Section 1.5) and finally the last section outlines the chapters that follow (Section 1.6).

1.2.   Background to the study

To start with, it has been deemed appropriate to begin with defining what is meant by "technology". Since the present study focuses on language teachers' professional development in relation to technology use, the definition provided by the TESOL organization in the TESOL Technology Standards Framework is used for this study. In this framework:

> "…technology […] refers to the use of systems that rely on computer chips, digital applications, and networks in all of their forms. These systems are not limited to the commonly recognized desktop and laptop computers: almost all electronic devices these days include an embedded computer chip of some sort (DVD players, data projectors, interactive whiteboards, etc.). Mobile devices that employ a computer at their core (cell phones, personal digital assistants [PDAs], MP3 players, etc.) will undoubtedly occupy a more central role in language teaching and learning in the years to come" (Healey et al., 2008, p. 3)

In the last few decades, human history has witnessed a rapid change in the technology surrounding us and technology has become an indispensable part of our lives. As such, it has been stated that technology "shows no signs of abating" due to the extent it has become embedded in and impacted on our lives (Conole, 2008, p. 124; see also Ducate & Arnold, 2006). From banking to health, all sectors have been affected by technological change and the field of education is no exception (Ducate & Arnold, 2006). One way in which the education sector has experienced this change is in the form of government initiatives which have provided schools with information and communication technologies (ICT) infrastructure (see

Hepp, Hinostroza, Laval, & Rehbein, 2004; Macaro, Handley, & Walter, 2012). In their comprehensive report on the use of technology in schools around the world, Hepp et al. (2004) identified three main themes for why governments invest money in supporting ICT in schools:

- *A new society requires new skills*: Technology has become ubiquitous in our lives and information processing is now handled through the use of ICT. In order to gain the skills needed for using technology successfully, new generations must have access to computers and networks during their education.
- *Productivity enhancement*: Since it offers faster and more reliable information processing, technology should become fundamental elements in storing and managing information at all levels of education.
- *A quest for quality learning*: In order to provide better education for students, educational authorities should continuously work on revising and developing present teaching practices. Technology can help in realizing this aim and for that reason it should be present in every classroom.

In relation to Hepp et al.'s (2004) last point, however, research findings at the turn of the century showed that no major scale successes were achieved through the use of technology and computers in the classroom and, in most cases, researchers have been unable to document the impact that technology is expected to have on student learning (see for example; Burnst & Ungerleider, 2002; Hepp et al., 2004; Kozma, 2003; Harrison et al., 2002). Nevertheless, there were a limited number of instances in which small scale successes were achieved. In those cases, the researchers found that teachers were involved in innovative pedagogies that included curricula related technology content as well as collaborative and self-paced learning opportunities for learners (see for example; Hepp et al., 2004; Hughes, 2005; Keengwe & Kang, 2013; Kozma, 2003). These findings suggest that it is not the technology per se but how it is used to facilitate learning that can make a difference. In the context of language teaching, similar to teaching of other subjects, these findings resulted in the articulation, by academics, of the need for professional development opportunities to train and prepare language teachers for the successful integration of technology (Chapelle, 2003; Garrett, 2009; Hanson-Smith, 1997; Hubbard, 2008; Hubbard & Levy, 2006; Stockwell, 2009).

At this point, it is timely to define what is meant by *professional development* and *technology professional development* (TPD). Professional development has been defined as "any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts" (Little, 1987, p. 491). When it comes to TPD, in a general sense it can be understood as activities that aim to increasing

teachers' performance and technology integration through developing their technical skills in the use of video, software, computers, and so on. In addition, as the above mentioned findings suggest, TPD should provide opportunities for teachers to find ways of relating their technology knowledge to the content they teach and pedagogy they employ. Further, the continuous developments in technology suggest that TPD opportunities need to be ongoing (Doering, Valetsianos, Scharber, & Miller, 2009; Lawless & Pellegrino, 2007). Therefore, TPD in the present study has been defined as activities that are intended not only to improve teachers' skills in using technology but also to extend their knowledge of how to relate the components of content and pedagogy employed in the teaching/learning process; it is an ongoing cycle of development.

In the 2000s, the most common form of TPD opportunities for teachers were reported to be workshops, which could be as short as one hour (see Lawless & Pellegrino, 2007; Parsad, Lewis, & Farris, 2001). However, over the last decade there has been continuous articulation of the need for more TPD opportunities for teachers. In addition, the low levels of technology uptake by language teachers, reported in research studies around the world, suggest that the provision of opportunities such as workshops is not able to meet the ongoing nature of TPD (see for example; Cutrim-Schmid & Whyte, 2012; Guichon, 2012; Healey et al., 2008; Li & Walsh, 2010). As Garrett (2009, p. 732) put it:

> "CALL [computer assisted language learning] is too complex and strenuous a topic to be mastered in such workshops. Even those teachers who are already familiar with routine or consumer uses of technology will find that it is extremely difficult to follow up on conference or summer institute workshops on CALL development unless they have substantive support from a language centre director or CALL specialist back at their home institution"

This can also be seen as a justification for the movement of the field away from "quick in-and-out workshops" for TPD and the subsequent searches for alternative methods of TPD that are spread over a longer period of time and provide follow-up and feedback opportunities (Lawless & Pellegrino, 2007, p. 594). A community of practice, the definition of which is provided below, can be one such alternative approach to TPD, since it can provide such follow-up and feedback opportunities (Wenger, 1998; Wenger, McDermott, & Snyder, 2002).

A community of practice (CoP) is described as:

> "a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment. Having others who share your overall view of the domain and yet bring their individual perspectives on any given problem creates a social learning system that goes beyond the sum of its parts" (Wenger et al., 2002, p. 34)

Thus, a CoP can be understood as a group of people with a shared interest in a topic that bonds them together and who deepen their knowledge by interacting with each other on a regular basis. Communities of practice could be beneficial for increasing teachers' professional knowledge because a CoP can potentially provide teachers with those elements, cited in the literature, which result in effective professional development, such as collaboration, an opportunity for mentoring and coaching, and sustainability over time (Cordingley, Bell, Thomason, & Firth, 2005; Darling-Hammond & McLaughlin, 1995; Little, 1993; Putnam & Borko, 1997; Walter & Briggs, 2012). However, CoPs require face to face settings where the community could discuss issues and develop and share knowledge. As such, it might be difficult to bring teacher members of a community together given the fact that teachers generally have limited time available outside of school (see for example; Granville, Russell, & Bell, 2005; Rickard, Blin, & Appel, 2006). In contrast, an online community of practice (OCoP), the creation of which has been possible thanks to the latest developments in technology, could enable teacher interactions via the internet which in turn could save time and resources, since, provided that they have the opportunities to get online, teachers are not necessarily required to travel to a central meeting place (Hanson-Smith, 2006; Stockwell, 2009). In fact, during the years I was a primary school English as a foreign language (EFL) teacher in Turkey, I experienced positive outcomes through my participation in online communities (i.e. learning about the use of blogs for teaching writing and and learning about the use of authorware such as Hotpotatoes[1] to create online exercises for students), which further motivated me to undertake the present study. From these perspectives, therefore, this thesis intends to investigate the teacher professional development in OCoPs and increase our understanding of the potential factors that affect member participation in OCoPs.

1.3. Context: Webheads in Action

During the search for communities with a focus on EFL teacher membership and technology professional development, a number of online communities that could potentially be studied were identified. However, a comparison of the number of interactions taking place within those communities revealed that there were more interactions taking place in the Webheads in Action (WiA) community. This suggested that the WiA community was more engaged, which is one characteristic that has been used to differentiate between an online community and an online community of practice (Lai, Pratt, Anderson, & Stigter, 2006; Wenger et al., 2002; Wenger, White, & Smith, 2009). Therefore, the decision was made to study the WiA

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[1] Hotpotatoes is a software suit that that can create exercises for the world wide web (www) see also https://hotpot.uvic.ca/index.php

community as a case study. To provide some context, the WiA community was founded in 2002 following the conclusion of an online training session of the same name (C. M. Johnson, 2005). At the end of the eight-week course, the participants decided to continue their online interactions and Vance Stevens, who was the organizer of the 'Webheads in Action' session became the moderator of the WiA community (C. M. Johnson, 2005). Through an analysis of member interactions and questionnaire data collected between 2002 and 2003, C. M. Johnson (2005) found that the WiA community aligned with the CoP theory and carried the characteristics of a CoP, such as core membership, developing a practice, and artefacts. C. M. Johnson's (2005) study demonstrated that CoPs can exist in online environments without the boundaries of the physical world. More recently, Kulavuz-Onal (2013) reported that members' participation in the WiA community leads to their perceived professional development in the use of technology in education. The aspects referred to above were motivating factors behind the selection of the WiA community as the case to be studied. One further reason for the selection of the WiA community was that, unlike most of the communities studied in the past, which have existed for a period shorter than a year (Blitz, 2013), WiA has existed for the last 11 years (as of 2013). Thus, it was considered that WiA would provide a good case to explore what factors motivate member participation and help in sustaining OCoPs.

1.4. Purpose and aims

Taking the Webheads in Action (WiA) online group as the case to be studied, this study builds on C. M. Johnson's (2005) and Kulavuz-Onal's (2013) findings and aims to: 1) determine whether WiA is still an OCoP in its 12th year of existence; 2) investigate whether participation in the WiA community led to EFL teachers' professional development with regards to integrating technology in their teaching practice; and 3) analyse what factors influence member participation in this community. In line with those aims, the answers to the following research questions (RQs) have been sought in this study:

- RQ1: Can the Webheads in Action (WiA) group still be considered to be an online community of practice (OCoP)?
- RQ2: Does participation in the WiA group lead to EFL teachers' perceived technology professional development?
- RQ3: What are the reported factors that affect member participation in the WiA group?

In relation to RQ1, as mentioned above, C. M. Johnson (2005) previously found that characteristics of the WiA community aligned with Lave and Wenger's (1991) communities of

practice theory; therefore WiA was considered to be an OCoP. CoPs, however, are dynamic social spaces that go through changes in time, and they have different life cycles in which they emerge, develop, and fade away (Lai et al., 2006; Lave & Wenger, 2002). This thesis opened with the statement that "an online community of practice is more than a community of learners but is a community that learns" (Schlager et al., 2002, p. 131), which implies a difference between online communities and OCoPs. When C. M. Johnson (2005) conducted his study, the WiA community was in its emerging stage. After the 12 years (as of 2014) since WiA was founded, it is possible that WiA has faded away to continue just as an online community. Alternatively, WiA may have continued to develop and sustained itself as an OCoP. Therefore, following the discussion by Wenger et al. (2002; 2009), the initial objective identified was to determine whether the WiA group still exhibits the characteristics of an OCoP.

In relation to RQ2, the idea of creating OCoPs for teacher professional development has received considerable attention in recent years and a number of research studies as well as reviews of literature have been produced (see for example; Guzey & Roehrig, 2009; Lai et al., 2006; Vavasseur & MacGregor, 2008). However, as Lai et al. (2006, p. 6) stated "the empirically based literature related to the online version of the community of practice […] is spare and largely untested". In spite of the considerable time (7 years) that has passed, Blitz (2013), who conducted a similar review of literature to Lai et al. (2006), has noted that "the field has not yet produced a critical mass of work in any particular area of investigation that can be used to compare findings and derive informed conclusions" (p. 13). Therefore, the present study attempts to add and contribute to the growing body of literature on OCoPs in the area of teacher technology professional development through an OCoP model in the context of EFL. In her nethnography (online ethnography) study, Kulavuz-Onal (2013) reported that knowledge of technology integration is mediated within the WiA community through member interactions and engagement. Kulavuz-Onal (2013) reported that participants in her study developed an understanding of the dynamic interplay between technology, pedagogy, and content as a result of their interactions within the WiA[2]. It has been argued, however, that when researchers conduct ethnographic research, they can often get too involved in the culture being investigated, due to having to collect data first hand (Fuller, 2004). Therefore, ethnographic research is considered to be a very subjective process in which writers acknowledge their subjectivity, to which Kulavuz-Onal (2013) was no exception:

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[2] Since it is a recent unpublished document, the existence of Kulavuz-Onal's (2013) study on the WiA community only came to the attention of the researcher of this study whilst conducting the main study in 2014.

"I do acknowledge my bias about the role of participation in this community on teachers' professional learning because I myself experienced positive outcomes" (Kulavuz-Onal, 2013, p.106).

Thus, reinvestigating the perceived effects of membership on WiA members' development of technology integration skills would help in the triangulation and corroboration of Kulavuz-Onal's (2013) findings.

Finally, in relation to RQ3, the limited number of researchers who have studied OCoPs, have tended to report that participating teachers developed their knowledge and understanding of technology (see for example; Guzey & Roehrig, 2009; Vavasseur & MacGregor, 2008). If the OCoP model is to become an alternative means of teacher professional development, it is important to understand what factors affect teachers' participation in such communities. However, in line with Blitz's (2013) and Lai et al.'s (2006) observations, there have only been a handful of studies, which have investigated the factors affecting teachers' participation in OCoPs (see for example; S. E. Booth, 2012; Hew, 2009). Hence, the present study also attempts to add and contribute to the body of knowledge on OCoPs with regard to factors affecting members' participation.

1.5. Approach

A pragmatic approach has been followed in this research study. Whilst being predominantly qualitative, quantitative aspects are also present in the study (see Chapter 3). The WiA community has been taken as the case to be studied and WiA members' perspectives of their community have been sought, in order to answer the research questions addressed in the study. Therefore, this study can be considered to be an embedded single case study (Yin, 2014). It was not the aim to develop separate, detailed case studies of each individual who participated in the study but to develop a richer conceptualisation of the perceived impact of the online community on members' teaching practice and the factors that affected their participation in this community. Hence, the embedded single case study design has been used as an organiser of the subunits. This approach also allowed for a comparative analysis of results to determine patterns as well as differences.

Richardson (1994, p. 5) noted "[r]esearch on the practice of teaching has recently shifted from a focus on effective behaviours toward the hermeneutic purpose of understanding how teachers make sense of teaching and learning". In this sense, the use of a predominantly qualitative case study design reflects the shift in trends within the field of education. As case studies are useful for understanding of the phenomenon under investigation (Yin, 2014), it was anticipated that following this approach would provide

valuable insights into the learning experiences of teachers participating in the online community.

Richardson (1994, p. 5) also highlighted that "there has been a strong movement toward teacher research that gives *voice* to practitioners, allows them to communicate their wealth of knowledge to other practitioners, and helps them improve their practice". By undertaking this study and seeking EFL teachers' perceptions of their experiences in the WiA community, it was hoped that EFL teachers would be given a "voice" to communicate their experiences and to be heard. EFL teachers' voices were collected through three different methods which will be summarized below but will be detailed in Chapter 3;

1) *Online survey:* Members of the WiA community were invited to participate in an online survey designed to collect information on community demographics and their perceived knowledge and skills of technology integration.

2) *Interviews:* Members of the WiA community, who volunteered to participate in the survey, were invited to participate in follow up interviews to discuss issues relating to their experiences of the online community.

3) *Documentary analysis:* The online interactions taking place in the WiA community's public Yahoo! group page have been collected over a period of nine months in order to support, challenge, and/or elaborate on the findings of the two methods detailed above.

1.6. Outline of the study

The thesis has been organized into six chapters. Chapter 1 has provided a background and context to the present study, introduced the purpose and aims, and highlighted its contribution to knowledge. This chapter has also briefly given an overview of the research approach as well as the outline for the remainder of the thesis.

Chapter 2 reviews and critiques the literature and establishes the need for more and alternative opportunities for the technology professional development of teachers. In addition, the community of practice (CoP) framework, which has been proposed as one such alternative, is introduced and this is followed by a detailed review of CoPs (i.e. how they differ from other community groupings) leading to the research questions asked in the present study.

Chapter 3 presents the methodology and methods utilized in the study in detail. The reasons for the adoption of pragmatism as the research paradigm and mixed-methods as the research strategy are presented. The data collection tools, the frameworks [technological pedagogical and content knowledge (TPACK) and Activity Theory (AT)], which guided the

development of those tools, and the development process are also explained. In addition to data collection procedures, considerations relating to the ethics and trustworthiness of the study are presented.

Chapter 4 presents the results of this mixed-method study through the use of AT, which provided a structured approach to analysis of the complex activity system of the WiA community. Chapter 5 presents a critical discussion of the findings in relation to the literature and the research questions. Finally, Chapter 6 summarizes the study and main findings and reviews its limitations. In conclusion, the implications and contributions of the study to teacher professional development are considered.

Chapter 2: Review of Literature

2.1. Overview

The present chapter reviews the literature and establishes the gap that led the researcher to conduct this study. Initially, the need for teacher professional development in computer assisted language learning (CALL) is discussed (Section 2.2). This is followed by a review of the benefits and constraints of current forms of technology professional development (TPD) opportunities for teachers, which concludes by introducing online communities of practice (OCoPs) as an alternative approach (Section 2.3). The discussion then shifts to OCoPs in Section 2.4, in which theories of learning associated with CoP theory are explained, characteristics differentiating CoPs and OCoPs from other community-based groupings are set, and studies conducted with teacher OCoPs in relation to their effectiveness for TPD are discussed as well as factors influencing teacher participation in OCoPs. The chapter concludes with a summary and revisits the research questions (Section 2.5).

2.2. The need for teacher professional development in CALL

As explained at the beginning of this thesis, the expectation that the addition of technology will increase the quality of education was a driving force behind investments providing technology infrastructure to schools. As a result of those investments, technology has become accessible to the extent that, in some countries such as Turkey, initiatives have been implemented for creating smart (computerized) classes, digitizing the learning content, and providing students with tablet personal computers (Turkish Ministry of National Education, n.d.). Consequently, the use of technology has now become stipulated in curricula and standards (see ISTE, 2000). Within the field of English as a foreign language (EFL) teaching, the use of technology has begun to be integrated in pre-service teacher education programs (see for example; Newby et al., 2007) and has become part of the European Profile for Language Teacher Education report; a document which has been prepared as a guide and frame of reference for policy makers and teacher trainers for the preparation and professional development of in-service foreign language teachers (Kelly & Grenfell, 2004). Furthermore, TESOL, a worldwide recognized organization in the field of English language teaching, has prepared specific technology standards for language teachers to follow (Healey et al., 2008).

In line with these observations from practice, the role teachers would play in successful technology integration has received growing recognition within academia. For

example, in their comprehensive report on the uses of technology for language teaching within primary and secondary school education, Macaro et al. (2012) highlighted:

> "A striking finding, in more than one study, was that the strongest effect was not between a CALL-only condition and a traditional classroom condition, but from instruction combining the two. […] This points to future research […] including combinations of CALL with classroom or teacher support and ICT skill building." (Macaro et al., 2012, p.24).

It can be interpreted that CALL on its own does not provide the sought after learning outcomes, rather successful integration of technology necessitates the inclusion of the language teacher in the process. Likewise, this view is supported by teacher educators in the field such as Hubbard (2008) who stated:

> "[t]he future of CALL […] is closely tied to the future of language teacher education because language teachers are the pivotal players: they select the tools to support their teaching and determine what CALL applications language learners are exposed to and how learners use them" (p. 176).

Over the last decade, these factors have resulted in a push for teachers to use technology in their teaching (Cutrim-Schmid & Whyte, 2012; Egbert, Paulus, & Nakamichi, 2002; Keengwe, Onchwari, & Wachira, 2008; Zhao & Bryant, 2006). However, the uptake of technology within the language teaching classroom has been low and limited, resulting in technology not being utilised to its full potential, despite the investments made and the push from both teacher educators and academics. For example, in their report on the development of TESOL technology standards framework, Healey et al. (2008) described what one of their colleagues experienced during her school visit in Cyprus:

> "… a project team member […] recently worked with one of the most well-equipped primary schools in Cyprus. The school has a networked computer lab with printers and data projector, one of the richest software libraries on the island, and an Internet connection that covers all the computers of the lab and all the computers in the school […] Despite the available technology, many classroom teachers never used the computers at all. Some teachers used the computers to prepare their work and handouts, and two teachers sometimes used the computer lab […] She subsequently encountered the same problem in many other primary schools in Cyprus" (p. 9).

Healey et al. (2008) highlighted that those findings were not unique to the school or the country being visited. Similarly, in a study conducted in China, Li and Walsh (2010) investigated the extent to which EFL teachers had access to technology and how they used it. The results of their survey (conducted with 400 teachers) and focus group interviews (with 33 teachers) revealed that EFL teachers, in fact, had a high rate of access to technology in their classrooms

(88.7 %). Nevertheless, whilst a great majority of teachers (91 %) reported to have received ICT training in the past, their use of technology in general (86 %) was limited to the extent that they used computers as presentation tools only. The authors concluded that "despite the fact that classrooms are generally well equipped, the presence of computers makes little change to classroom practice, with teachers still focusing almost exclusively on grammar and language forms" (Li & Walsh, 2010, p. 109). A similar trend has been reported in France, where language teachers' increased use of technology for personal and professional purposes has yielded little or no difference in their teaching practice (Cutrim-Schmid & Whyte, 2012; Guichon, 2012). The situation in Germany has been similar; Cutrim-Schmid and Whyte (2012) stated that the uptake of technology has been low in spite of the increase in access to technology and the pressure to use it in the teaching/learning process.

In the context of the Arabian Peninsula, similar findings were reported by Al-Mansour and Al-Shorman (2012). In their study, the researchers investigated the implementation of CALL into English teaching in a higher education institution in Saudi Arabia. However, their application of CALL remained peripheral and was used as an add-on (i.e. to present grammar and vocabulary items) to the traditional teaching methods. Finally, in a more recent study, Webster and Bae-Son (2015) investigated the factors which affected the technology use of 46 EFL teachers in a higher education institution in South Korea. Similarly to the studies cited above, Webster and Bae-Son (2015) concluded that teachers, with regards to their use of technology, "more often than not struggled to put into practice what their education, training and experience had taught them to do" (p. 92).

One reason for this low uptake may be that the integration of technology is a complex process which requires teachers to have knowledge of not only how to use/operate the technologies available for teaching, but also knowledge of how those technologies can be integrated in relation to the content being taught, the pedagogy employed and the teaching context.

To begin with, there is a variety of different technologies that can be used for teaching different language areas (i.e. grammar, vocabulary) and skills (i.e. listening, writing), and at the same time the same technology can be utilised in the teaching of different language areas and/or skills. For example, in a study conducted within the Taiwanese context, Tsou et al. (2006) investigated the impact of using digital storytelling on elementary school students' development of reading and writing skills in English. In this study, students were provided with the opportunity to use a website allowing the creation of their own digital stories in which they could use graphics, animations, text, and read aloud their stories as well as record their own

voice for replaying the story at a later stage. On the other hand, Verdugo and Belmonte (2007) observed that the same technology (digital storytelling) was used to develop the listening skills (sound patterns and prosody) of elementary school students in Spain. These two studies demonstrated how the same technology can be utilised in the teaching of different language skills. With regards to the teaching of the same language areas and/or skills using different technologies, Coniam and Wong (2004) investigated the effects of utilizing ICQ messenger (an instant messaging computer mediated communication (CMC) tool) on secondary school students' use of English (grammar and complexity of sentences that students created) in Hong Kong. In contrast, Ackerley and Concetta (2007) reported on the development of a multimodal corpus authoring (MCA) software which can also be used for teaching grammar (language functions and forms) and which offers the possibility of illustrating the use of language functions and forms in context, not only with the support of text, but also with the support of video/audio which is linked to a specific function or form within the corpus. The above studies identify a few of the many different technologies available and serve as examples of how a variety of technologies could be used in the language teaching/learning process[3]. Notably, if teachers are to increase their use of technology for teaching languages, they would need not only the knowledge of how to operate those technologies but also an understanding of how a particular technology could be used for the teaching of the language content.

The pedagogical considerations of integrating technology into language teaching are also articulated in the literature (Guichon & Hauck, 2011; Handley, 2014; Hubbard, 2008; Hubbard & Levy, 2006; Kessler, 2006; Levy & Stockwell, 2006). Kessler (2006) noted that integration of CALL should be "informed by an understanding of pedagogy and technology and how the two merge" (p. 35). Similarly, Guichon and Hauck (2011) used the term "techno-pedagogical competence" and, based on their review of the literature, created a list of techno-pedagogical competences which included the ability to assess the potential affordances and/or constraints of technologies for their learners and the ability to design appropriate tasks to help learners achieve pedagogical goals. In line with that, researchers concur that CALL practitioners should not focus on finding a single solution for technology integration but rather they should carefully evaluate effectiveness of different technologies and their advantages and constraints, with a particular focus on their specific context taking into account factors such as their learners, the classroom context, availability of technology, and curriculum goals (Handley, 2014; Levy & Stockwell, 2006).

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[3] Comprehensive reviews detailing the variety of technologies used for language teaching can be found in the literature but are beyond the scope of this study (see Levy, 2009; Macaro et al., 2012; Stockwell, 2007).

In conclusion, despite the availability of technology and requirements to use it, many teachers are not using technology in their teaching. One reason for this outcome may be that technology integration requires more than just the ability to operate different technologies. The observations above suggest that technology professional development (TPD) opportunities for teachers should address how technology can be integrated with pedagogy and content, in addition to technical competence and awareness of available technologies. A framework, that is worthy of noting at this point, is the technological pedagogical and content knowledge (TPACK) framework, which was developed to understand technology adoption and integration (Koehler & Mishra, 2008, 2009; Mishra & Koehler, 2006). According to the TPACK framework, a teacher's ability to integrate technology in their teaching is determined by the dynamic interplay of their knowledge of; 1) the subject matter they are trained to teach (content knowledge), 2) the methods and principles of teaching (pedagogy knowledge), and 3) their ability to work with and operate technologies (technology knowledge). TPACK framework will be further examined and discussed in Chapter 3.

2.3. Current models of technology professional development (TPD) for teachers

In response to the need for TPD identified in the previous section, a number of different models of TPD have been trialled in the field of teacher education. The main approaches which have been trialled are: workshops, cascade training, mentoring, and design-based training (Lawless & Pellegrino, 2007). In the sections that follow each of these approaches will be explored in turn.

2.3.1. Workshops

Lawless & Pellegrino (2007) stated that workshops are generally short (as little as 1 hour), are often being referred to as 'one-shot', and are generally focused on providing information on how to use certain technologies (i.e. software, hardware) rather than incorporating the pedagogical and content related considerations discussed in the previous section. In turn, it has been argued that the limited time teachers spend in such workshops may not necessarily be sufficient for the development of an understanding of how technologies can interact with subject matter and particular pedagogies (Koehler & Mishra, 2005). For example, in a small scale study Gross, Truesdale, and Bielec (2001) explained how they developed a three step TPD plan for teachers from both urban and rural schools in the Quebec province of Canada. The first step of the development plan was a one day training called "One Day Wonder". While this specific workshop aimed at improving teachers' technology integration skills, the limited time span was not considered to be enough for learning to take place. Indeed, it was reported

that the teachers needed more support in integrating technology into their teaching even after the workshop finished.

It is also important to consider that, even for workshop training sessions that have been found to benefit teachers, reaching all teachers through a workshop training approach can be time-consuming and difficult to achieve. Rhode Island Teacher and Technology Initiative (RITTI), for example, trained 2380 teachers over the course of two years (Henríquez & Riconscente, 1999). Henriquez and Riconscente (1999) reported that the attendees perceived the offered training to be beneficial for the development of their skills in using technologies and that their confidence in using a variety of software and resources increased (some teachers' perceived confidence was reported to increase from 43% to 99%). Nevertheless, the 2380 teachers that RITTI reached over the two years constituted only 25 % (approximately) of all teachers in Rhode Island at the time. This in turn suggests that it would take approximately eight years to train all of the teachers in Rhode Island. Furthermore, given that technology changes so rapidly and professional development is continuous, the teachers who had initially taken the training might need to attend further training to continue their development in technology. Therefore, it could be difficult to sustain TPD through a workshop approach.

2.3.2. Cascade training

Cascade training, also referred to as a "train the trainers model", is an approach in which an initial group of teachers are trained to become trainers who would then train other teachers (Lawless & Pellegrino, 2007). Having teachers train other teachers could be useful since teacher instructors can better understand the classroom beliefs, values, ethics, principles and demands of their colleagues (Howard, McGee, Schwartz, & Purcell, 2000). This method of training could be convenient to reach a large number of teachers in a relatively shorter time compared to the workshops (see Gonzales, Oickett, Hupert, & Martin, 2002; Lewin, Scrimshaw, Somekh, & Haldane, 2009; Rickard et al., 2006). However, since they aim to reach a large audience, such training opportunities might neglect the local needs of individual teaching contexts, which can potentially result in knowledge development that is not relevant to individual teachers' needs (Gonzales et al., 2002). For example, the technology(ies) which teachers are learning about in such training may not necessarily be available in the school a teacher works in.

It is possible, to a certain extent, to take into account such contextual factors within cascade training. Rickard, Blin, and Appel (2006), for example, developed a technology training program for language teachers across Ireland which had two phases. Firstly they trained language teachers coming from different areas across Ireland and in the second phase, the

trained teachers became trainers who were then responsible for training other teachers in their area. Those teachers were asked to develop their own curriculum in considerations of the local needs, thereby developing a programme sensitive to the local context. One drawback, however, was that those teachers, who became trainers, reported that they had a busy schedule in schools and did not enjoy the fact that they needed to travel to another city on weekends. In addition, teachers sacrificed their time outside working hours in the development and delivery of the training, yet there was no recognition of their efforts in the form of an official degree or equivalent. Therefore, teachers were less enthusiastic to join the initial training to become trainers.

2.3.3. Mentoring model

In mentoring, also referred to as coaching, teachers are assigned mentors/ coaches who will help them (the mentees) as the need arises (Lawless & Pellegrino, 2007). Compared to workshops and cascade training, this model of professional development provides mentees with individualized learning opportunities over a longer period of time (Lawless & Pellegrino, 2007). Through this approach mentees can receive follow up and feedback opportunities and collaborate with their mentors. The mentor/ coach could be a colleague who is more skilled in technology, a graduate student studying technology, or someone else who is more knowledgeable in the area that the mentee is trying to develop their skill.

It has been illustrated that during the mentoring process it is not only the mentees but also the mentors who benefit from the mentoring program, because both members are active in the creation of knowledge and understanding of technology which flourishes as collegial support over time (see Cole, Simkins, & Penuel, 2002; Holbein & Jackson, 1999; Kariuki, Franklin, & Duran, 2001; Mulqueen, 2001). Meskill et al.'s (2006) case study with pre-service and in-service teachers and doctoral students provides a good example of the mentoring approach. All participants in the study developed their knowledge and skills as a result of this collaboration and coaching programme; pre-service teachers contributed in this process by bringing in their knowledge of new teaching approaches and their fresh skills of operating technologies and in-service teachers contributed their pedagogical expertise and experiences of having used technology in their teaching. In addition, the doctoral students were able to contribute their higher knowledge of technology, new teaching approaches, and pedagogical expertise. The mentoring model can be beneficial and effective in responding to teachers' individual needs in relation to technology integration. However, it would be difficult, if not impossible, to provide every teacher with a mentor so that they could continue their professional development in such a fashion (Meskill et al., 2006).

2.3.4. Design-based training

Design-based training is a model of training similar to workshops. The difference between the two is that design-based approach is more contextualized which is intended to respond to the curricular and local needs of teachers and it takes place over a longer period of time rather than "one shot" and short term workshops (Lawless & Pellegrino, 2007). Similar to the mentoring/ coaching model, this method allows teachers to increase their ownership of resources, become more confident in applying what they learn to their teaching practice, and become more positive about the impact of such curriculum resources on student learning (Lawless & Pellegrino, 2007). For example, in a UK based study looking into integration of interactive white boards (IWB) in primary schools, Lewin et al. (2009) found that training which is contextualized according to the needs of teachers in different local authorities provided teachers with an opportunity to reflect on their learning and pedagogy. Moreover, such training prepared teachers to create a community in which they can share their new knowledge, receive feedback, and continue their development through contacts with these members even after the training is over. It could, however, be argued that it may not have been only the training itself that resulted in the positive outcomes, but also what the training provided, namely an environment that allowed collaboration with other teachers, discussion of problems associated with the integration of technology, and a community that was sustained after the end of the training:

> "Teachers learnt technical and pedagogic skills in IWB use through dialogue and interaction with other teachers, perhaps the most crucial factors in enabling learning according to post-Vygotskian learning theory (Prawat, 1991). Discovering new ways of teaching with an IWB within a professional community revitalised teaching for many teachers, for example one described the process to the evaluators as 'exciting'. These professional learning communities around IWB use were observable in most case study schools, and sometimes extended to a cluster of linked schools" (Lewin et al., 2009, p. 183).

Such a community is referred to as a community of practice, which will be detailed in the next chapter (Lave & Wenger, 1991).

In conclusion, while different models of training could be useful for teachers' professional development to some extent, training provided for a short period of time without follow up and feedback opportunities might not be suitable for TPD. In addition, while train the trainers and mentoring models seem to be promising, it might not be possible to find mentors for all teachers or enough volunteers to become the trainers in the cascade training model. Moreover, it has been stressed in the literature that EFL teachers' access to TPD opportunities has been limited and even teachers who had prior CALL training find it difficult to keep up with

technological developments (Hanson-Smith, 2006; Hubbard, 2008; Stockwell, 2009). This reinforces the view that current TPD opportunities are not sufficient and provides a justification for looking into alternative means of providing TPD. With the "sociocultural turn" in which knowledge is considered dynamic, social, and situated, K. E. Johnson (2006) argued that the boundaries of professional development need to be redefined because teacher learning does not only occur within professional development activities such as workshops and seminars. Rather, teachers are constantly learning through their interactions with their immediate environment such as their classrooms and colleagues. She added that technological developments of our age enabled teachers to access online chat rooms, blogs, and virtual communities which allowed new forms of participation and interaction to emerge. As such, it is the premise of this study to examine whether and how participation in an online community of practice can contribute to language teachers' TPD.

2.4. Online Communities of Practice (OCoPs): An alternative approach to TPD

This section starts with defining Communities of Practice (CoPs) and Online Communities of Practice (OCoPs) in order to set the criteria for distinguishing CoPs and OCoPs from other community-based learning models. Following this, issues relating to participation and membership in CoPs and life cycles of CoPs will be considered. After this, the effectiveness of online communities for teacher TPD and factors influencing member participation in online communities will be explored.

2.4.1. Communities of practice (CoPs)

A CoP is described as "a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment" (Wenger et al., 2002, p. 34). In addition to this definition, McDermott (2001) stressed that:

> "…communities of practice are not just celebrations of common interests. They focus on practical aspects of a practice, everyday problems, new tools, developments in the field, things that work and don't" (p.2).

It can be inferred from the above quote that not all communities are CoPs. In this section, characteristics that differentiate CoPs from other communities will be examined in order to set the criteria for the consideration of a community as a CoP. Moreover, the different levels of participation in CoPs are explained and the life cycles of CoPs are examined. It is argued that whilst there has been evidence showing that the Webheads in Action (WiA) community (the

case study of this thesis) can be considered to be a CoP, the dynamic nature of CoPs necessitates reinvestigation of this issue.

2.4.1.1. *Characteristics of CoPs*

The notions of Vygotsky's (1978) Socio-cultural theory and Lave and Wenger's (1991) Situated learning theory, both of which will be discussed in more detail in the following sections, suggest that a community of practice (CoP) approach to professional development can potentially provide the conditions that have been discussed in the literature to result in effective professional development, such as being participant-driven, collaborative, and ongoing (Darling-Hammond, 1998; Darling-Hammond & McLaughlin, 1995; Little, 1993; Putnam & Borko, 1997; Walter & Briggs, 2012). With regard to the present study, a CoP approach can potentially provide opportunities for in-service EFL teachers to share their ideas and practices for technology use, which would in turn create a space for teachers to discuss the affordances and constraints of different technologies in their specific contexts, subsequently leading to TPD.

It is important to note that the term CoP has been applied and used as a general term to refer to community-based learning models:

> "...in the literature the term CoPs is often used interchangeably with terms such as communities of interest, communities of tasks (Schlager & Fusco, 2004), projects, teams, practice fields (Barab & Duffy, 2000; Johnson 2001), communities of learners, communities of enquiry, knowledge building communities (Buysse, Sparkman, & Wesley, 2003; Scardamalia & Bereiter, 1994), knowledge-based communities (Riel & Polin, 2004), and communities of purpose (Schlager & Fusco, 2004)" (Lai et al., 2006, p. 12).

Wenger and Trayner (n.d., p. 1), on the other hand, define a community of practice as "a group of people who share a concern or passion for something they do, and learn how to do it better as they interact regularly". This definition highlights the three fundamental characteristics that Wenger et al. (2002; 2009) introduce, which are; a) shared domain, b) community, c) and practice. This section elaborates on these characteristics for a better understanding of what is meant when the term CoP is used in the present study (where possible comparisons and similarities to other community-based groupings, are made).

Shared domain

The shared domain can be seen as the area of interest that brings individuals together. Wenger et al. (2002, p. 27) assert that "[a] well defined domain legitimizes the community by affirming its purpose and value to members and other stakeholders". It is through the shared domain that members are inspired and encouraged to participate in community activities that

lead to knowledge building in a collective manner (Fraga-Cañadas, 2011; Wenger et al., 2002). CoPs are similar to other community-based groupings such as communities of interest (Henri & Pudelko, 2003), communities of purpose (Schlager & Fusco, 2004), task-based communities (Riel & Polin, 2004), communities of learners (S. A. Barab & Duffy, 2000; Henri & Pudelko, 2003), knowledge-based communities (Riel & Polin, 2004), and knowledge building communities (Scardamalia & Breiter, 1994) in that, in all these groupings, individuals are brought together based on an interest that they share with other members (see Table 2.1). However, while CoPs "are loosely knit groups driven by the value they provide to members, […] and bounded by the sense of collective identity the members form" (McDermott, 1999, p.1), task-based communities and communities of learners are more strongly committed to the results than the community itself.

Wenger et al. (2009, p. 31) refer to the domain as the "*raison d'être"* of a CoP and explain that the domain "can range from very mundane know-how, like eating healthy food, to highly specialized professional expertise, like designing aircraft wings". Since community based approaches to learning consider that learning takes place as a result of interaction, it is not surprising that researchers consider the shared domain as a dynamic entity that can evolve in time as a result of those ongoing interactions between members (Henri & Pudelko, 2003; Wenger et al., 2002; Wenger et al., 2009). It has been stated that through their interactions members are involved in the process of negotiating meaning, with the aim of accommodating the range of perspectives that members have (Henri & Pudelko, 2003). Wenger et al. (2009, p. 5) consider this as the "the domain inside" the community, which as a result of the nature of participation in CoPs, is potentially open to controversies. Additionally, it has been highlighted that without this involvement and negotiation of meaning, the community might cease to exist or a small group of central members might come forward who, then, impose their ideas on the community, which in turn would result in infrequent and low levels of participation by other members (Snow, 1993; Fischer 2001, as cited in Henri & Pudelko, 2003). Although the shared domain of the Webheads in Action (WiA) community has been described as aiming "to help each other learn about forming and maintaining robust online communities through hands-on practice with synchronous and non-synchronous text and multimedia CMC (computer mediated communication) tools" (WiA Yahoo! Group, n.d.; see also C. M. Johnson, 2005; Kulavuz-Onal, 2013; WiA Facebook Group, n.d.; WiA Google + Community, n.d.), it is possible that due to its dynamic nature, the shared domain of WiA has changed. Therefore, as previously discussed, whether there is still a shared domain of interest among members of the WiA community and if so what it is, will be reinvestigated in order to determine whether WiA community can still be considered to be a CoP.

Community

A community is viewed as "a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment" (Wenger, 1998, p. 34). Members of a CoP engage in joint activities that relate to the shared domain and participate in the negotiation of meaning that defines membership in a CoP. This process has also been described as "mutual engagement" where members acknowledge not only their own but also other members' competence and knowledge, enabling each member to make meaningful connections with what other participants share within the community (Wenger, 1998, p. 72). In this sense, mutual engagement binds members into a social entity. This is different to communities of interest and communities of purpose, for example, in that while members of CoP relate themselves more to the community (hence the term mutual engagement), members of "communities of interest" and "communities of purpose" identify themselves more to the topic that has brought them together (Henri & Pudelko, 2003).

A number of factors that can indicate mutual engagement in a community have been identified in the literature, which are; regular interactions, equality and diversity, relationships, and community maintainance (Fraga-Cañadas, 2011; Lai et al., 2006; Wenger, 1998; Wenger et al., 2002; 2009). Through regular interactions (online and/or offline), members are given the chance to engage in activities that matter to them and diversity and equality enables members to bring in different perspectives, experiences, expertise, points of view, and prior knowledge to the community. It should be noted that equality here refers to an equal degree of control over community activities and does not necessarily require an equal amount of contribution to those activities (Damon & Phelps, 1989). In engaging around topics relating to their shared interest, members can, in time, develop social relationships that can entail friendships, collaboration, competition, tensions, and/ or conflicts (Wenger, 1998). Last but not least, invesments (time and effort) should be made in order to maintain the community and its activities (Lai et al., 2006; Wenger, 1998; Wenger et al., 2002; 2009).

Membership in a CoP is another factor that distinguishes it from other community groupings. As Schlager and Fusco (2004, p. 140) noted there can be different roles that members play in the community; a member can be a "broker, moderator, mentor, and learner in different contexts […] and the transition between roles is not scripted, designated, or assigned". This is a characteristic that clearly helps us differentiate between CoPs and task-based communities, communities of interest, and community of learners where roles are primarily static and/ or pre-defined (S. A. Barab & Duffy, 2000; Henri & Pudelko, 2003; Riel & Polin, 2004; Schlager & Fusco, 2004).

Table 2. 1. Synthesis of the literature on differences of CoPs to other community-based approaches to learning

Type of Community	Characteristics		
	Shared Domain	**Community**	**Practice**
Community of interest/ purpose	Members brought together by a shared interest in a topic	Could differ in size, there are no defined roles and contributions to the community are made on individuals' initiative	Members are not necessarily involved in collective activity, production of knowledge depends on members' loyalty to the shared domain
Community of learners	Students (in a formal context such as school) brought together for learning	Could differ in size but usually a small number of members and learners' responsibility is to accomplish the tasks set by the instructor	Learning is a formal objective and knowledge construction takes place through collective activity, which is designed according to learners' levels and institutional context by the tutor
Task-based community	Members brought together for accomplishing a pre-defined task	Includes a small number of members whose roles and responsibilities are generally pre-defined	Community generally disengages once the task (that is predefined) has been accomplished and the value of product has been assessed by others
Knowledge-based community	Members brought together for advancing their knowledge and expertise in an area	Could differ in size and members' responsibilities are formally divided based on their skills and expertise	Collective activity drives the creation of knowledge; however, what is important is the creation, advancement, and dissemination of this knowledge
Community of Practice	Members brought together by their shared interest in a topic/ area	Could differ in size, members informally take different roles depending on their skills and community dynamics	Use, reuse, revision, and reconstruction of information through the activities that members accomplish together, members can freely access those artefacts

In contrast, membership in knowledge-based communities is based on all members contributing equally to knowledge and members are, therefore, accepted into such communities based on their credentials as knowledge builders (Riel & Polin, 2004). In communities of learners, members are generally students who are part of the same programme (Henri & Pudelko, 2003). In CoPs, however, membership is not necessarily limited to a certain group yet it is clearly related to having the same shared domain. For example, members of a CoP can include teachers as well as school principals. Further, there is not a specified number for the size of a community that researchers consider to be appropriate for a CoP (Wenger et al., 2002) compared to task-based communities, which generally consist of a small number of people who know one another (Riel & Polin, 2004).

It is important to note that although C. M. Johnson[4] (2005) previously established the presence of mutual engagement and interaction amongst members of WiA, changes, either positive or negative, may have occurred during the decade which has passed since his study was conducted.

Practice

Once the members (community) are brought together by their shared interest (shared domain), they interact with each other, thereby creating a shared enterprise that can be considered as the *practice* and artefacts of a community (Davies, 2005; Wenger, 1998; Wenger et al., 2002; Wenger et al., 2009)**.** The practice includes both the activities that members of a community undertake together (i.e. exploring ideas and sharing information) and the products and artefacts that those members create together (i.e. documents, tools, websites, articles, theories, and so on) (Wenger, 1998). Furthermore, practice in CoPs also "embodies a certain way of behaving, a perspective on problems and ideas, a thinking style, and even in many cases an ethical stance. In this sense, a practice is a sort of mini-culture that binds the community together" (Wenger et al., 2002, p. 39).

The practice and artefacts in CoPs, as explained above, can be considered as a product of mutual engagement, which differentiates it from communities of interest in which activities and creation of knowledge is not necessarily a collective endeavour (Henri & Pudelko, 2003). Unlike in a community of learners, in which the activity of learning is "guided by an instructor and linked to the disciplinary or transdisciplinary objectives of the curriculum or studies programme" (Henri & Pudelko, 2003, p. 481; see also Barab & Duffy, 2000), activities and learning in CoPs are guided by the learners' expectations and interests through engaging in collective activity. The learning in CoPs can be seen as a continuous cycle where the *practice* and its products are reused, revised, and/or reconstructed (Riel & Polin, 2004; Wenger et al., 2002). In contrast, in task-based communities the community often disengages with the outcome of the task, reflecting the nature of their community learning as a product (Riel & Polin, 2004). Additionally, in CoPs the artefacts, which reflect the practice, are generated in service of the community and the value of the practice is evaluated by the members themselves, while in task-based communities the products are created for a specific task that has been specified prior to the emergence of the community and the value of that product is assessed by others who are not part of that specific community (Riel & Polin, 2004). Lastly,

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[4] The reader is reminded that the data collection for C. M. Johnson's (2005) study took place between 2002 and beginning of 2003. The data collection for the present study, on the other hand, took place between the last quarter of 2013 and first half of 2014.

although accomplishing activities together with other members is an important aspect of CoPs and knowledge-building communities, in the latter more attention is paid to creating and advancing knowledge than to doing things together (Riel & Polin, 2004).

To summarize, while having a shared interest is important for the formation of a CoP, simply gathering a group of people around a shared interest does not necessarily qualify them to be considered as a CoP. It is important that members in a community interact regularly and build on their knowledge of their shared interest by contributing to exchanges within the community (at a level appropriate to their expertise and from their own perspectives-) and build social relationships during the interaction process (e.g. friendships). This, nevertheless, is not enough to make them a CoP. One last criteria for a community to be considered as a CoP is that the knowledge which they create out of their interactions and collaboration should be made available to all members. This is also referred to as the practice of a community and reflects not only the knowledge co-constructed within the community but also the complexity of mutual engagement (both at social and cognitive levels) in the community, thus embodying both the knowledge repository and the culture and identity of the community. The three characteristics mentioned so far, namely shared domain, community (mutual engagement), and practice, are key to differentiating CoPs from other community groupings. Therefore, these criteria can be used to investigate whether a community can be considered as a CoP or not.

2.4.1.2.   *Membership and participation in CoPs*

Wenger et al. (2002) explained that it would be unrealistic to expect all members of a CoP to have similar levels of participation in the community, due to differences in members' aims for participating in CoPs (i.e. some participating for personal connections and others for opportunities to develop their skills in an area of interest). Consequently, different levels of participation emerge within a CoP. In their figure of a circle representing different levels of participation, Wenger et al. (2002) grouped membership in CoPs into three main categories; 1) core, 2) active, and 3) peripheral (see Figure 2.2).
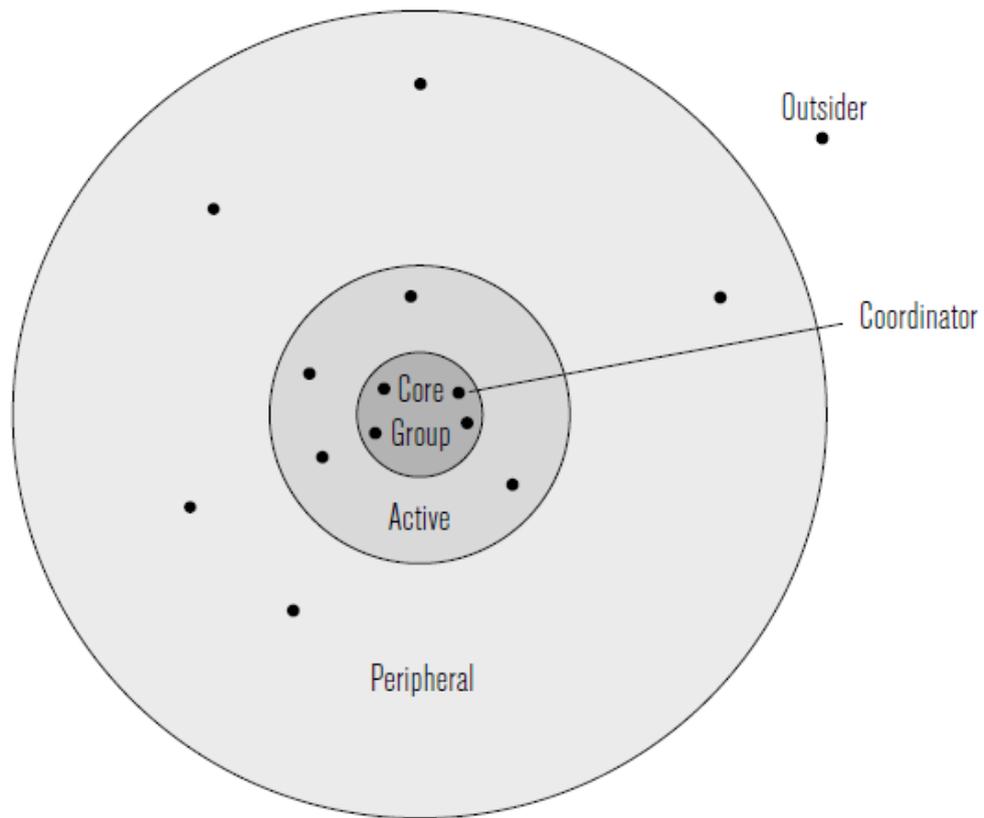
Figure 2. 1. Degrees of community participation (Wenger et al., 2002, p. 57)

To begin with, members in the core group are those who actively participate and contribute to the discussions around the shared domain that the community is interested in (Wenger et al., 2002). This core group generally includes a coordinator who organizes community events and enables the networking of members. Members in the *core* group "take on community projects, identify topics for the community to address, and move the community along its learning agenda" (Wenger et al., 2002, p. 56). As can be seen in Figure 2.2, this group of members are at the heart of the community and can be considered as leaders who are "auxiliaries to the community coordinator" (Wenger et al., 2002, p. 56). It is worth noting that members in this group only make up around 10 % to 15 % of all community membership (Wenger et al., 2002).

The second group of members are the active group who have been depicted just outside the core of the community (see Figure 2.2). This group of members "attend meetings regularly and participate occasionally in the community forums" (Wenger et al., 2002, p. 56); however, their participation is not as intense as those of the core group. According to Wenger et al. (2002) about 15 % to 20 % of the group population is made up of active members. The last and biggest group of members who are furthest from the centre of the community are the

peripheral members, who rarely participate. This group make up around 65 % to 75 % of the community and their typical community activity includes keeping "to the sidelines, watching the interaction of the core and active members" (Wenger et al., 2002, p. 56). The reasons for peripheral activity has been claimed to be related to members' feeling that "their observations are not appropriate for the whole or carry no authority" or that members "do not have the time to contribute more actively" (Wenger et al., 2002, p. 56). While they posit that they are not in favour of peripheral participation in a traditional (face to face) meeting, Wenger et al. (2002, p. 56) acknowledge the importance of peripheral activity in the online environment and state that "people on the sidelines often are not as passive as they seem".

A notable point to add here is the dynamic nature of participation in a CoP where members' level of participation can change over time (Wenger et al., 2002). For example, core members might move back to the periphery with changes in the topics discussed within the community, or active members might "be deeply involved for a month or two [and] then disengage", and members on the periphery might move towards the centre as their learning increases through legitimate peripheral participation (Wenger et al., 2002, p. 57). The concept of legitimate peripheral participation will be discussed further in Section 2.4.3.2

2.4.1.3.   Life cycles of CoPs

"CoPs are diverse in nature, and, like organisms in ecological niches, they originate, evolve, and may become extinct" (Hoadley & Pea, 2002, p. 326). Lai et al. (2006) argue that we need to understand how CoPs are formed, mature, and terminate if we are to create effective communities. There has been a considerable amount of interest in this field and several authors have produced models explaining the life cycles of CoPs. Preece's (2000) model, for example, includes four stages that have been defined as prebirth, early life, maturing, and death. Wenger et al.'s (2002) model, on the other hand, includes five stages that have been defined as potential, coalescing, maturing, stewardship, and transformation. It has, however, been decided to follow Lai et al.'s (2006) three-stage model of CoP life cycles because: 1) it is based on a synthesis of the previous models discussed in the literature; and 2) it was designed with a focus on online CoPs, which is of particular interest in the present study. The stages of life cycles that Lai et al. (2006) have proposed are; 1) formation, 2) sustaining or maturing, and 3) transformation or disengaging.

Stage 1: Formation
In this initial stage it is vital to "have activities that allow members to build relationships, trust, and awareness of their common interests and needs" (Wenger et al., 2002, p. 82). According to Lai et al. (2006), there needs to be sufficient energy to bring together a group of people

interested in the community. It has been posited that the process of community formation starts with a steering team and a coordinator (St-Onge & Wallace, 2003). In addition, Lai et al. (2006, p. 29) have proposed a number of steps to be followed in launching a CoP:

- Identify potential community
- Determine purpose and scope of the community
- Community building
- Create a preliminary design for the community
- Incubate and deliver immediate value
- Launch the community

Since Johnson (2005) found that the Webheads in Action (WiA) community represented the characteristics of a CoP, it is considered that the WiA community incorporated those steps successfully when it was launched in 2002.

Stage 2: Sustaining/ Maturing

It has been stated that the forming of a community is easier than the process of sustaining it (Lai et al., 2006). In a study conducted with 15 online communities within professional organizations, Cothrel and Williams (1999) found that the extent of time and effort required to sustain the communities "is almost always greater than the effort required to launch the community" (p. 58). Notably, Wenger et al. (2002) asserts that it is at this stage that attention needs to be paid to the roles and boundaries of the CoP and the organization of the community's knowledge. According to Lai et al. (2006) during this stage a CoP should be able to create value for its members, the community, and the organization (if applicable). It is "through a continuous cycle of development, evaluation, and growth" (p. 31), which is supported by a team of core members, that the community matures, a rhythm for community activities is established, and the community begins to self-sustain itself. A number of strategies have been proposed by Lai et al. (2006) in order to help mature/ sustain an OCoP. However, since those strategies relate to member participation, they will be discussed in a later section (see Section 2.4.5). If in the present study it is found that WiA still exhibits characteristics of a CoP, then this suggests that WiA community has been able to sustain itself for the last 12 years (as of 2014) and findings from the present study may provide empirical support so as to what factors support teacher members' participation in an online community of practice.

Stage 3: Transforming/ Disengaging

In this phase, it is possible for the community to: be further expanded (St-Onge & Wallace, 2003); or transform and become a formal part of an organization or merge with other communities (Wenger et al., 2002); or fade away and die (Preece, 2000). At this stage the

number of participating members decreases and the interaction and discussions among members decrease to the extent that the critical mass needed to sustain the community is not achieved; consequently, the community stops functioning (Preece, 2000). If in the present study it is found that WiA community is in a stage where it has disengaged, then the present study may provide empirical data so as to what factors prevent teacher members' participation in an online community of practice.

To this end (in Section 2.4.2), we have discussed how CoPs differentiate from other community-based approaches to learning and established the characteristics that make a CoP; shared domain, community (mutual engagement), and practice. The different levels of participation in a CoP and the dynamic nature of this participation were then explained. Finally, the longevity and life cycles of CoPs was presented. It is worth noting, though, that CoPs differentiate from OCoPs in a number of ways (i.e. OCoPs do not require physical space as they are based online). Therefore, the next section introduces OCoPs and how they differentiate from other community groupings.

2.4.2. Online communities of practice (OCoPs)

In this study, an online community of practice has been defined as a group of people who share similar interests, aims, purposes or needs and share knowledge, collaborate or cooperate mainly via online communication networks and are guided by either formal or informal policies (based on definitions provided by Hunter, 2001; Jones & Preece, 2006; Zhu & Baylen, 2005). Whilst sharing similarities with CoPs, OCoPs differ in a number of ways when compared to CoPs. Additionally, similar to discussions presented in the previous section not all online groupings are OCoPs. In this section, the differences between OCoPs and CoPs, and OCoPs and other online groupings will be addressed.

To begin with, a number of characteristics that can be used to differentiate between CoPs and OCoPs have been identified in the literature. The most prominent difference between the two communities relates to the form of communication utilised, which is primarily computer mediated in an OCoP compared to face-to-face in CoPs. CMC tools such as email, listservs, blogs, wikis, discussion boards, bulletin boards, instant messaging (text), audio/ video teleconferencing, and/ or MMOs[5] enable individuals to communicate to others via the internet. Since member communication is mainly supported with technology which eliminates physical borders, members of an OCoP can be from different geographical locations

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[5] A MMO (also called MMOG) stands for massively multiplayer online game, which is capable of supporting large number of players simultaneously.

and may not necessarily be part of the same organization, rather scattered around several different organizations. Lai et al. (2006) argue that technological support (i.e. in the use of the platforms that enable member interaction) is an essential component for members to be able to participate in an OCoP and which allows an OCoP to function, whereas that is not necessarily an issue in CoPs.

According to Lai et al. (2006), OCoPs generally follow a top-down design approach for forming the community and the leaders of the community are recruited. In CoPs, however, the community generally emerges from existing groups (e.g. teachers in a school) and the leaders may emerge from the community itself. Another difference highlighted in the literature is the approach OCoPs and CoPs follow in recruitment of members; while membership in OCoPs is open and members do not necessarily know each other, membership in co-located physical CoPs is closed and members are generally acquainted prior to the CoP being established. Wenger et al. (2002), however, warn that for an OCoP to function, a critical mass of members is necessary. Last but not least, since members in OCoPs do not necessarily know each other, Lai et al. (2006) argue that it would take a longer time to develop an OCoP compared to co-located CoPs. It is worth re-acknowledging that Lai et al.'s (2006) review of the literature on OCoPs is mainly based on studies conducted within the field of business organizations and, therefore, those findings might not necessarily apply to OCoPs in educational contexts. Indeed, unlike Lai et al.'s (2006) assertions regarding the design approach to build OCoPs, C. M. Johnson's (2005) case study of the WiA community has shown that OCoPs, like CoPs, can emerge from existing groupings and this provides further support for undertaking the present study, which investigates OCoPs in the field of education.

Finally, in line with the arguments that the term "CoP" has been loosely defined and used as a general term for community based approaches to learning (see Section 2.4.1.1), it has also been stated that bringing people together in an online environment does not necessarily make an OCoP and that "the majority of the online communities reported in the literature are not communities of practice" (Lai et al., p.17). The three characteristics (shared domain, community, practice) that Wenger et al. (2002; 2009) defined as fundamental elements of CoP can also be applied to differentiate OCoPs from other online groupings. It is worth adding, however, that an emphasis is placed on the levels of collaboration and engagement within an OCoP, which often takes place in an informal way, in distinguishing OCoPs from other online communities such as online communities of interest and online communities of learning (Lai et al., 2006; Schlager et al., 2002; Wenger et al., 2002; Wenger et al., 2009). Similarly, Booth (2004) highlighted that "instead of having an information specialist as a primary gatekeeper, however, [OCoPs] are characterised by the willing participation and

ongoing interaction of their members" (p. 34). Last but not least, as Schlager, Fusco and Schank (2002) stated "an online community is more than a community of learners but is a community that learns" (p. 131). In this process, members move through stages of development by interacting with more experienced learners; this development is associated with learning theories such as Socio-cultural Learning and Situated Learning, which will be further explained in the next section.

2.4.3. Theoretical foundations: Social theories of learning

Learning within CoPs, whether online or face-to-face, can be explained by social theories of learning, i.e. Socio-cultural theory (Vygotsky, 1978), distributed cognition (Hutchins, 1995, 2001), Activity Theory (Engeström, 1987), and Situated Learning (Lave & Wenger, 1991). Social theories of learning view learning as a process that is an internalized product of our social interactions. In this sense, speech is a key element of knowledge creation and attainment since it enables the social interactions that allow us to co-construct knowledge, negotiate meaning, and learn from each other (Wertsch & Bivens, 1992). Those aspects of social learning (with a focus on the historical, cultural, and contextual issues) are what K. E. Johnson (2006) refers to in her work describing the "sociocultural turn" in the context of education, and it is these theories that emerged from Vygotsky's (1978) and Lave and Wenger's (1991) work (among others that adopted a Socio-cultural view) and which have contributed to the changes in educational practices over time. Working in a higher education context in a programme preparing future teachers to teach English in UAE, Clarke (2008) noted:

> "Vygotskian theory allows us to conceptualize how the students' ongoing development as individuals occurs within the affordances mediated by the social practices and discourses of the student teachers' community. The communities of practice model enables us to see how the student teachers co-construct both identities and community through their mutual engagement in the joint enterprise of learning to teach, their alignment with a shared discourse, and their imaginative integration of past and future in the present" (p. 38).

It can be seen that Clarke (2008) refers to both on Vygotsky's and Lave and Wenger's work, and it is for this reason that the concepts from these theories are particularly important to the context of the present study. Therefore, both Socio-cultural Learning (Vygotsky, 1978) and Situated Learning (Lave & Wenger, 1991) theories will be unfolded in turn in the next sections. Since CoPs and Situated Learning is built on Vygotsky's (1978) ideas, Socio-cultural Learning theory will be introduced prior to Situated Learning.

2.4.3.1.   Socio-cultural Learning theory

As has been argued so far, Socio-cultural Learning theory places an emphasis on the role of social interaction in the development of cognition. In other words, Socio-cultural theory values the relationship between the individual and their environment (Van-Der-Veer, 2007), through which "humans shape and are shaped by social, cultural, and historical conditions" (Daniels, Cole, & Wertsch, 2007, p. 1). According to Vygotsky, the task of psychology was to explain how mental, human, and social activity is organised through cultural tools (Lantolf, 2000; Rosa & Montero, 1990) or as Wertsch (1990) noted the task of socio-cultural analysis is to provide an explanation of the relationships between human action and the cultural, institutional, and historical situations where this action takes place. Vygotsky (1978, p. 88) conveyed how "human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them", hence conscious human activity results from an understanding of the use of signs, from learning taking place in social environments, and from adopting and adapting to culture and social relationships (Blanck, 1990). Though children have lower mental processing skills compared to adults, the interactions they have with adults and/ or with more knowledgeable peers enable them to increase their mental processing powers, to put it differently "social relationships and culture are the sources of the mind, the working brain only its organ, and the unique social activity of each subject how it originates" (Blanck, 1990, p. 49). In this sense, as Vygotsky noted "[a]ny function of the child's cultural development appears on the stage twice, or on two planes, first the social, then the psychological, first between people as an intermental category, then within the child as an intramental category" (Vygotsky, 1931; as cited in Rieber, 1997, pp. 105-106).

As an integral part of the Socio-cultural Learning theory, the concept of "zone of proximal development" (ZPD) has been introduced by Vygotsky as a critical reaction to standardised tests (Moll, 1990), which have been considered to have the ability to reveal a child's current but not potential development (Rosa & Montero, 1990). The assumption of ZPD is that children begin learning not only when they start being schooled but, in fact, from the very moment they are born (Vygotsky, 1978). According to Vygotsky (1978) there are different levels in a child's development which include: the actual development level, that is what a child already knows or completed; and the potential development level, that is what a child can achieve with guidance. To provide a more precise definition, Vygotsky (1978) described ZPD as:

> "… the distance between the actual developmental level as determined by independent problem solving and the level of potential development as

determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

As can be seen from Vygotsky's (1978) description, an emphasis is placed on the developmental cycle of learning for a child which also addresses that child's future development. ZPD is "an area that grants him [a child] access to functions new to him and placed within his reach by culture and society" (Del-Río & Álvarez, 2007, p. 280). The working principle of ZPD is that social interactions with adults or more capable peers trigger children's internal development processes, which result in learning (Meshcheryakov, 2007). While Vygotsky's (1978) Socio-cultural theory and ZPD has been formed in the context of children's development, his ideas, which have been mentioned to have influenced theories of social learning, have also been implemented in the area of language teacher education (see for example an edited book by K. E. Johnson & Golombek, 2011). In fact, some researchers have employed terms such as "zone of proximal teacher development" (Warford, 2011).

It is important to note that tools and signs (i.e. language) are an important element of the Socio-cultural Learning theory, since they mediate the interaction and allow for the learning to take place. The tools and signs include: "language; various systems of counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps and mechanical drawings; all sorts of conventional signs and so on" (Vygotsky, 1981, p. 137). With technological advances, computers and the internet can also be considered as mediation tools since they facilitate the co-construction of knowledge.

"Scaffolding" can also help learners to move through the zones of development to the point where knowledge is gained (Bruner, 1975). Bruner (1975) described "scaffolding" as interactions between a child and a parent/ tutor in which the parent/tutor provided just enough support for the child to achieve a goal. According to Vygotsky (1978), both interaction and scaffolding are important factors for cognitive development and knowledge acquisition. It is through scaffolding that learners can increase their levels of understanding and acquire the skills necessary to accomplish tasks, which, if one tried alone, they would not be able to successfully complete. Rosa and Montero (1990, p. 83) highlight that "the individual is formed through the internalization of activities carried out in […] society and through the interaction that occurs within the zone of proximal development". For learning to take place, it is necessary that the experts provide assistance to learners on how to manipulate processes and apply new knowledge for future processes (Moll, 1990). The learner does not necessarily imitate the expert but rather transform what they observe the experts are doing in the process of learning and internalize that (Lantolf, 2000).

2.4.3.2.   Situated Learning

Situated Learning, like Socio-cultural theory, claims that individuals create meaning and learn through their interactions and activities in daily life (Lave & Wenger, 1991). According to Lave and Wenger (1991) situated learning is composed of four main assumptions;

- individuals are social beings, which puts an emphasis on the social nature of learning,
- knowledge is a matter of competence with respect to valued enterprises,
- knowing is being actively engaged with the pursuit of such enterprises, and
- the aim of learning should be the production of meaning that derives from our experiences of the world (Wenger, 1998, p. 4).

It was these assumptions that directed Lave and Wenger (1991) to adopt social engagement as the primary focus of their theory. This is in line with Vygotsky's (1978) Socio-cultural theory that treats culture as the primary factor that plays a role in an individual's development, and language in this process is considered to be the tool that enables cognitive development (Vygotsky, 1978; Wertsch, 1990). Additionally, four main components have been presented in Wenger's (1998) model of social learning theory: 1) community that focuses on learning as belonging; 2) identity that considers learning as becoming; 3) meaning that refers to learning through our experiences of the social world; and 4) practice that can be seen as learning while participating in an activity (see Figure 2.1.). Thus, the main principle of this theory is that we learn as we interact with other individuals and our enterprises, and "this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise" (Wenger, 1998, p. 45).

It can be argued that interaction is an important element of Situated Learning theory, since the individual is performing actions in the world, and is learning within his/her environment, and as a result of which they become more knowledgeable. To put it differently, learning is conceptualized as social participation in this theory (He, 2008). In fact, Lave and Wenger (1991), themselves, explain that this concept "claims that learning, thinking, and knowing are relations among people in activity in, with, and arising from the socially and culturally structured world" (p. 51). In other words, Situated Learning theory suggests that meaning is co-constructed and context bound, which suits well with the present study in which EFL teachers' interactions within an online community will be examined.
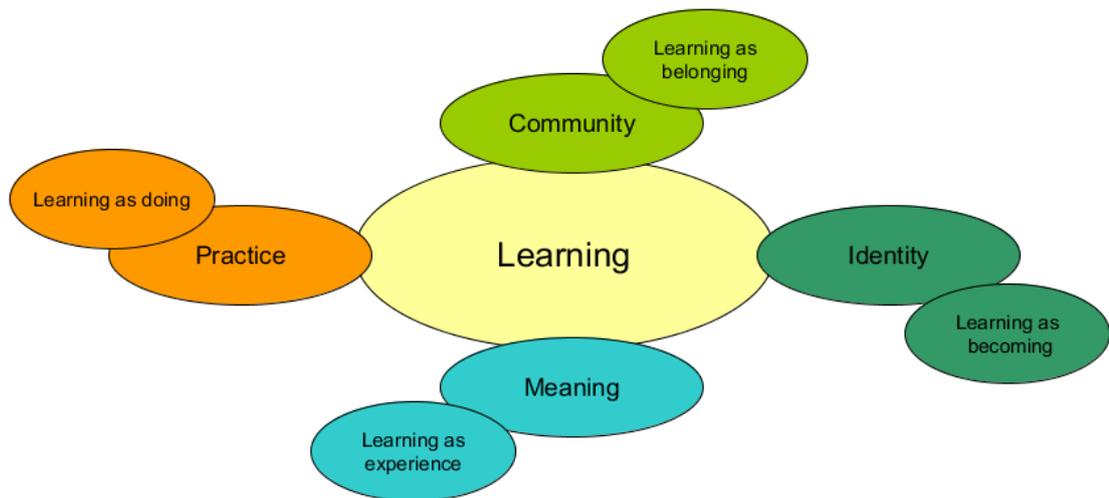
Figure 2. 2. Components of a social theory of learning, adapted from Wenger (1988, p.5)

Two key concepts that are associated with Lave and Wenger's (1991) Situated Learning theory are: communities of practice (CoP), which is the focus of this study; and legitimate peripheral participation (LPP). Since the definition of a CoP and its characteristics have been provided in the previous sections, I will focus on the concept of LPP. LPP is the product of Lave and Wenger's (1991) attempts at finding an alternative to the term "apprenticeship", since they felt confusion surrounding the meaning of the latter. Consequently, Lave and Wenger drew a distinction between apprenticeship as a historical form and Situated Learning as a theory. Lave and Wenger (1991) define LPP as a process where learners' initial participation in CoPs is peripheral and then in time, through their participation, those learners gain the knowledge and skills that enable them to move into full participation. Lave and Wenger (1991) state:

> " 'Legitimate peripheral participation' provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice. A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a sociocultural practice. This sociocultural process includes, indeed it subsumes, the learning of knowledgeable skills" (p.29).

To put it differently, new members in a CoP, through LPP, are able to access the shared practices of a community and this process keeps a community alive by allowing new members to be integrated to the community over time (Levine, 2010). Additionally, emphasis is placed on the fact that LPP is neither an educational form nor a teaching technique, rather it is a way

of viewing and understanding learning (Lave & Wenger, 1991), and is therefore a central part of EFL teachers' learning and professional development in the present study.

Although LPP is to be considered as a term as a whole, it is also possible to break it into smaller pieces (i.e. the words constituting the term) in order to provide a more fine-grained explanation (Lave & Wenger, 1991). To begin with, the first element *legitimacy* encompasses the idea of belonging to the community. Legitimacy is a central part of learning in CoPs and all participation in the community, whether it is on the periphery or in the centre, is considered as legitimate with all members belonging equally to the community. The second element is *peripherality*, which suggests that there is more than one mode of participation in a CoP (Lave & Wenger, 1991). Members who are on the periphery are those who do not interact with others but mainly observe how others interact, and through this process of observation they can, in time, increase their participation and responsibilities to become full participants (Lave & Wenger, 1991; see also Section 2.4.1.2). Lave and Wenger (1991) refer to this process as "process of community reproduction" in which "newcomers" become "old-timers" (p. 56). In short, gaining legitimate peripherality requires access to the community, its members, its resources, and most importantly its old-timers (Lave & Wenger, 1991). It is considered that EFL teachers in this study have been through/ are in the process of legitimate peripheral participation, either as observing the interactions of other members or interacting with other members, in the community.

In their work, Lave and Wenger (1991) studied five different cases of apprenticeship; 1) midwives in Mexico, 2) tailors in Liberia, 3) US Navy quartermasters, 4) butchers in US supermarkets, and 5) Alcoholics Anonymous members. Through these case studies, Lave and Wenger (1991) highlighted the role LPP plays in the learning or in the breakdowns of learning in CoPs. They observed that strong relationships exist between the members in a community, the activities they undertake, and the artefacts they operate with, and concluded that participation, and knowledge creation and dissemination are key factors in the success of a community (these factors will be discussed in detail later in Section 2.4.5). Lave and Wenger (1991) maintain that the status of being a full participant member of a community can be achieved by going through various stages, where one starts from being a peripheral member and, through his or her interactions within the community, learns and gains knowledge and skills over time, resulting in movement towards the centre. They highlight the importance of newcomers' participation in the community and warn that if the newcomers do not participate to some degree, there is a possibility that learning may become obsolete. Additionally, Lave and Wenger observed that language was an important factor within communities. If newcomers are to move to a full participant role, then it is important that they realize that

they need to learn how to talk rather than learning from the talk in the community (Lave and Wenger, 1991). Similarly, focusing on this aspect of LPP, Davies (2005) notes:

> "The key concept here is that of legitimate peripheral participation: the idea that learners need to be allowed to participate in a limited way in actual practice, with only a limited degree of responsibility, in order that the learning context is not unduly pressurized. Such persons are considered to be in an inbound trajectory, headed for full participation in the community of practice" (p. 565).

One of the examples that Lave and Wenger (1991) provide to demonstrate the varied levels of participation in CoPs, and how it affects learning, is that of the midwives in Mexico, who were allowed and encouraged to increasingly participate in the practices that created the community. This allowed the newcomers to have imperfect practices but in time they, with increased participation in the practice, were able to match their skills to the level that was expected from them in the community. In contrast, Lave and Wenger observed that, in the case of butchers in the supermarkets in USA, each apprentice was taught one task at a time in their practical work. Those individuals, therefore, only moved to another task to be trained when there was a need to fill a position left by another member. Therefore, the butchers were not able to access "the breadth of practices necessary to full participation in the" CoP (Davies, 2005, p.565). It has also been highlighted that "in shaping the relation of masters to apprentices, the issue of conferring legitimacy is more important than the issue of providing teaching" (p. 91), which has, in fact, been documented through the five cases that Lave and Wenger (1991) provided. It is the aim of the present study to investigate this phenomena in the case of an online community of practice and with a population of EFL teachers. Moreover, Lave and Wenger (1991) also stress the importance of interactions not only between the master (those who are considered as full participant or old-timers) and apprentices (those who are considered as peripheral participants or newcomers) but also between other masters and other apprentices. This process is seen as a key to peer support, scaffolding, and collaboration, which have been considered to be a characteristic of effective professional development (Cordingley et al., 2005; Darling-Hammond & McLaughlin, 1995; Little, 1993; Putnam & Borko, 1997; Walter & Briggs, 2012). To summarize, it is suggested that the transformation to becoming a full participant requires that peripheral members engage with the everyday practices of the community; however, understandably, peripheral members would need time to observe and learn how to talk with the community in order to achieve this.

As can be seen from the discussion above, ZPD and Vygotsky's ideas highlight the importance of social interactions and mediation and constitute the basics of the approach taken towards professional development of teachers in the present study. The concept of the

ZPD itself is fundamental to the present study because it is considered that the EFL teachers who participate in online CoPs scaffold each other, thereby potentially allowing the opportunity for the less experienced members to move through the ZPD and advance their knowledge and skills. Likewise, this situation can be considered to be a process in which the less experienced EFL teachers go through various stages of legitimate peripheral participation and move from being a peripheral member to becoming a full participant. Having introduced the notions of the social theories of learning that relate to the present study, we will now look into research evidence on the effectiveness of CoPs for teachers' technology professional development.

2.4.4. Technology professional development (TPD) through community-based approaches to learning

While there has been a considerable amount of research in the area of online communities and OCoPs (see for example edited books by Barab, Kiling, & Gray, 2004; Lindberg & Olofsson, 2010) , research on teacher technology professional development (TPD) through an OCoP approach (which is the present study's focus) has been relatively rare. In addition, the majority of the literature surrounding OCoPs purports to draw on socio-cultural theories of learning and the concept of CoP but, in fact, they fail to adequately apply the CoP framework and show how the community(ies) they studied meet the criteria of a CoP (Lai et al., 2006). For these reasons, rather than narrowly focusing only on TPD through OCoPs, this review of literature has been expanded to TPD through community-based approaches including face-to-face, online, and hybrid (both online and face-to-face) communities. After discussing studies individually a synthesis of the findings will be provided and implications will be drawn, linking to the rationale of the present study.

To start with, Zygouris- Coe & Swan (2010) reported findings of a case study on the Florida Online Reading Professional Development (FOR-PD) program, which was funded by the state of Florida USA and was implemented state-wide. FOR-PD was a 14-week online training programme, which was content-specific and aimed at helping pre K-12 teachers keep abreast of the latest research and best practices for teaching reading and instruction. As a result of the online delivery of the programme, some parts of the training included the development of the participating teachers' technology skills. However, those skills remained at the level of developing operational skills for using technology. Zygouris- Coe and Swan (2010) reported that FOR-PD was successful in reaching high numbers of participants. Within five years, over 16,000 teachers had successfully finished the FOR-PD program. Although there were a high number of participants, they were assigned into smaller groups each of which had individual

course facilitators who had previously been trained for that role. Researchers found that FOR-PD experience allowed teachers to learn how to use technology to enhance their own learning with technology and enabled them to better empathise with their students who had a lifetime of exposure to learning with technology. It was reported that in their small groups (communities), teachers were involved in collegial dialogue which could be considered to be an indicator of a zone of proximal development (ZPD) and legitimate peripheral participation (LPP):

> "We have found […] that more experienced online community members often help novice members with suggestions about technology and content". (Zygouris-Coe & Swan, 2010, p. 128)

Multiple sources of data such as online surveys, interviews, quality assurance checks, focus groups, course content and participants' contributions to the online platform were used in order to evaluate the effectiveness of the FOR-PD program. The results of this study suggested that FOR-PD helped teachers develop skills such as using the Internet to search for information and using computer mediated communication (CMC) tools for online collaborations, which could be considered to be operational skills.

Scott &Scott (2010) , on the other hand, after analysing two case studies that looked into different uses of technology for teachers' professional development and its impact in the classroom, put forward a new model of professional development, named "webs of enhanced practice". The first case study was from Canada and the second from Australia. In the Canadian case study, the authors showed that the latest technologies made it possible to mirror face-to-face professional development approaches (Scott & Scott, 2010). Voice over Internet protocol (VOIP) software (a synchronous CMC tool), as well as Blackboard Learning System[6] and email, were utilized in order to enable graduate students to interact and collaborate in an online community as part of a distance learning course. It was stated that "[t]eachers who engage in these distance programmes have greater opportunities to develop their understanding of innovative uses of technology than their counterparts who opt for face-to-face programmes" (Scott & Scott, p. 177). This was due to the trainee teachers' first-hand experience of the technology in their effort to communicate with their colleagues. In the Australian case study, the transformation of a school and its teachers through government funding was explained. A technology professional development team was established consisting of a teacher-leader, network administrator, and technicians, which formed the community. Moreover, support was

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[6] Blackboard Learning System is a virtual learning environment and course management system developed by Blackboard Inc. (see www.uki.blackboard.com)

provided for a school intranet system, the purchase of sufficient computers for the schools, and technical support. The authors reported that over the course of eight years, significant outcomes occurred in the teachers' technology efficacy, mainly thanks to the technical team and the professional team's collaboration and support. The authors reported that the participating teachers developed skills in using the school intranet, exchanging emails, designing websites, editing / uploading videos, internet browsing, and using Microsoft Office (MS) applications, which, similar to Zygouris- Coe and Swan's (2010) study, can be considered to be at the level of operational skills. Unfortunately, no further details on how teachers used those technologies in their classes were provided in the publication. However, it has been stated that those skills were acquired through after school training and the community, which subsequently emerged within the school (Scott & Scott, 2010). Based on their evaluation of the two case studies, Scott and Scott (2010) proposed a new model of learning that capitalizes on and brings together the positive aspects of those case studies through a system that they named 'webs of enhanced practice'. According to the model, synchronous and asynchronous modes of communication could be utilized to create a community of teachers who could collaborate with technicians, teacher-leaders, principals, and other teachers.

In a different study, Pachler et al. (2010) reported on a teacher training program and its impact in schools. The program was "Transformation Teachers Program" (TTP) supported by the Haringey City Learning Centre in London. Pachler et al. (2010) explained that teachers who participated in the TTP were given laptops and a number of softwareapplications that could be utilized for teaching. The teachers were allowed to keep the technology related items and software after the training, provided that they initiate innovation in their schools, as well as transfer their learning to the other teachers in their schools. The authors, then, moved on to narrate the cases of two teachers; Tessa (who was a TTP graduate) and Sasha, who joined Tessa's talks and collaborated with her on how to use technology in teaching. The authors reported that Sasha, who is an English (L1)[7] teacher, developed skills in using the interactive white board (IWB) and using blogs in order to develop students' criticality towards literary texts. In that study, Sasha stated: "I know what I can do with it [technology] for my teaching", which suggested that she had not only developed skills of operating technology (the IWB) but also an understanding of how to use technology for the teaching of the content. This learning was reported to have taken place thanks to the CoP that emerged as a result of Tessa's afterschool talk sessions, in which collegial dialogue took place.

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[7] English as a first language

In another study, Guzey and Roehrig (2009) studied the development of technological pedagogical and content knowledge (TPACK) of four in service science teachers over a one-year professional development programme in the USA. A technology enhanced community (TEC) was designed to increase teachers' technology integration in teaching science. After a two-week summer training programme, an online community was created by researchers for participating teachers on LeMill[8] platform. The participants were able to interact not only with each other but also with university researchers through the TEC. In addition to the online platform, the community also met face-to-face (i.e. during the two week summer course organised for professional development activities). Therefore, the community created in this study can be considered to be a blended one. The authors highlighted that the technology integration skills needed for science teachers could be different to that of other subjects. Consequently, the teachers were taught about technologies such as Cmaptools[9], Probeware[10], and digital microscopes, which relate primarily to science as a subject, as well as other technologies such as computer simulations, digital images, and videos. Guzey and Roehrig (2009) stated that TEC allowed participating teachers to learn how to create technology-supported, inquiry-based lesson plans in collaboration with other teachers and researchers, who provided advice and support to improve lesson plans when necessary, thus enabling the development of their skills in using and integrating technology. For example, the authors observed that Matt, one of the participants, made frequent use of Cmaptools in his teaching and uploaded them to his class website, where he also directed questions to students and involved them in learning outside of school through their participation in online discussions. This can be considered to be an innovative pedagogy utilising technology in the sense that Matt used technology not only as a presentation tool but also took into consideration the context, his students and their abilities and engaged them actively in the learning process, which extended beyond the school. Guzey and Roehrig (2009) noted that, during the summer course, they had limited opportunities to cater for the specific school contexts and needs of the participating teachers; however, they tried to respond to these individual needs through online discussions and the guidance they provided via the online community they created. This can be seen as an example of TPD, which is contextualized / tailored to the specific needs of participating teachers. This study is also a good example of how technology professional development can be subject-specific.

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[8] LeMill is a web community for finding, authoring, and sharing learning resources (see http://lemill.net)
[9] Concept map tools (Cmaptools) are graphical tools used for organizing and representing knowledge.
[10] Probeware is scientific equipment which allows probes to be interfaced with software and computer systems for the purpose of collecting, interpreting, and analysing data.

Vavasseur & McGregor (2008) investigated middle school teachers' TPD through an OCoP approach. Like the community in Guzey and Roehrig's (2009) study, the communities created for the study were blended; participating teachers extended their collaboration through the online space created for them. There were a total of 2 schools involved and four OCoPs (2 in each school with science and math teachers forming an OCoP and social science and English teachers forming another), in which a total of 40 teachers participated. Both schools were identified as lacking, with regard to the integration of technology in the teachers' curricular areas. Vavasseur & McGregor (2008) aimed to identify the influences of the OCoP approach to professional development on teachers' technology self-efficacy development and integration of technology in the subject they teach. A technology integration module was created after an initial needs analysis of the teachers and face-to-face training occurred twice a week. Moreover, teachers participated in weekly discussions in the OCoPs, which were facilitated by the researchers and the school principal, who assumed the role of leadership. The results of the pre and post teacher technology efficacy surveys suggested that teachers developed their skills and were more confident in:

- using technology as a productivity tool (e.g. using excel program for graphing survey results from class newspaper reports)
- using technology as a research tool (e.g. searching for information on the Internet)
- using technology as a communication tool (e.g. sharing new ideas on Blackboard)

Moreover, Vavasseur and McGregor (2008) explained that the collaborations, which took place among members of the OCoP, positively affected teachers' perceptions of the importance of computers in education. For example, teachers discussed the use of blogs and/or online journaling for their English classes. Additionally, authors' analysis of the technology enhanced lesson plans, which the teachers prepared, showed that the plans included appropriate use of technology in relation to the teaching content.

One last study that looked into teacher professional development in an OCoP is Kulavuz-Onal's (2013) nethnography (online ethnography) study of the Webheads in Action community. In her doctoral study, Kulavuz-Onal (2013) became a participating member of the WiA community and took part in all of the activities that the community organized, in order to understand the culture of the WiA community. Kulavuz-Onal also interviewed five participants, who were all English language teachers, and analysed the public communication between the members to identify whether the members of WiA developed their technology integration skills in language teaching through collegial dialogue. Kulavuz-Onal (2013) found that the members she interviewed had developed skills and knowledge of pedagogically sound

technology integration for the language learning/teaching process. For example, as a result of her participation in the WiA community, Beren (one of the interviewees) "not only developed her repertoire [of technology tools] but also gained a better understanding of how contextual factors affected her choices and ways of applying various Web 2.0 tools in her teaching" (Kulavuz-Onal, 2013, p. 264). A number of technologies, the use of which has been reported to be learned by members, included: blogs, wikis, LMS[11], and digital storytelling.

The findings of the studies presented above indicate that teachers, who had participated in community based professional development programs, generally developed skills in relation to operating technology(ies) (Guzey & Roehrig, 2009; Kulavuz-Onal, 2013; Pachler et al., 2010; Scott & Scott, 2010; Vavasseur & MacGregor, 2008; Zygouris- Coe & Swan, 2010). Nevertheless, there were also cases where the findings suggested that participating teachers also developed an understanding of how they could use certain technologies for the teaching of a specific subject area (Guzey & Roehrig, 2009; Kulavuz-Onal, 2013; Pachler et al., 2010) and how those technologies can be used in pedagogically sound ways, taking their teaching context and learners into consideration (Guzey & Roehrig, 2009; Kulavuz-Onal, 2013). Although, it was not clear whether the communities created for the research studies cited above were CoPs or not, the evidence provided regarding teachers collaboration, which can be considered in relation to zone of proximal development (ZPD) and legitimate peripheral participation (LPP), suggested that socially situated approaches to learning can be effective for teacher professional development, providing support for the conducting of research into what factors make CoPs (OCoPs in this case) successful. In addition, since no previous study has addressed the issue, it would be beneficial to determine the effect of participation in an OCoP on EFL teachers' TPD[12].

2.4.5. Factors affecting participation in OCoPs

To date, the evidence regarding community-based approaches to TPD suggests that there is the potential for OCoPs to be used in the facilitation of TPD. This makes it worthwhile to investigate the factors affecting participation in online communities, in an effort to determine how teacher participation in such communities can be increased. In the following sections, literature surrounding this topic is synthesized and structured according to the fundamental

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[11] A learning management system (LMS) is a software application for the administration, documentation, tracking, and delivery of e-learning courses or training programs.

[12] It is acknowledged that although Kulavuz-Onal's (2013) study with the WiA community dates back to 2013, it only became publicly accessible in 2014. At that time the present study had already been piloted and the main study was being conducted.

characteristics of CoPs, which have been introduced so far; shared domain, community, and practice. Where possible, the arguments made in this section have been supported with the findings of empirical studies that have investigated teacher participation in OCoPs.

2.4.5.1. *Shared domain*

The shared domain can be seen as the area of interest that brings individuals together. It has been stated that successful communities maintain a clear and focused purpose (Lai et al., 2006). For example, in his study investigating teacher support and development opportunities provided in online communities supported by an email list, Ridings (2001) found that knowing that other members of the community also had similar aims and interests positively affected and increased member participation in the community, resulting in "high quality messages as well as providing effective professional development opportunities" (p. 293). In a more recent study, in which two successful online teacher communities of practice were examined and teacher members were interviewed, S. E. Booth (2012) found that both communities had a clear aim, which was known to their members, and which, subsequently, provided ground for activity within the communities. It was, therefore, the shared domain, which bonded the members together; having a clear purpose helped in providing "fertile ground for knowledge sharing" (S. E. Booth, 2012, p.18).

In contrast, in their study, which aimed to design an Inquiry Learning Forum (ILF; an online community for the professional development of science and math teachers), Baek and Barab (2005) reported that there were intense tensions over the purpose of the community, and that the designers and teachers debated over whether the aim of the ILF was to support school-wide, long term educational reform or provide support for teachers' short-term user needs. The participating teachers in the study prioritised the latter, while the designers aimed for the former. At the end of two months, after which the site was launched, Baek and Barab (2005, p.168) reported that since the teachers' expectations of finding "more ready-to-use resources" had not been met, their participation in the online space remained low. Eventually, the designers agreed to respond to teachers' daily needs. However, since they also wanted the participating teachers to have a richer experience than simply downloading materials from the ILF website, the teachers were also asked to engage in discussions around the materials shared within the online community. Consequently, as the researchers argued, this "led to a strategy of 'both/and' rather than 'either/or' " in formulating a shared purpose (Baek & Barab, 2005, p. 168).

In a similar study, Carr and Chambers (2006) investigated the factors that affected teacher participation in an online community, which was created to support K-12 teachers

across Australia. Their findings suggested that teachers perceived "that there was little point in participating in online communications within the NQSF [the online community] environment unless such conversations assisted in the implementation of their school improvement projects" (Carr & Chambers, 2006, p.150). What is surprising is that all of the participating teachers in this community were involved in projects aimed at making improvements in their own school, yet they did not see this as an opportunity to talk about school change as a discourse. Rather, they narrowly focused on finding people who were engaging in similar topics and projects, resulting in low participation levels. Yet another attempt at creating an online teacher community of practice comes from Thang et al. (2011), who invited 20 teachers from five different schools in a Malaysian context. The teachers, who participated in this study, however, taught different levels of students as well as different subjects such as English and Science and, therefore, did not perceive participation to be necessarily directly applicable to their teaching practice. As a consequence, levels of participation were low (Thang et al., 2011).

Based on the studies discussed in this section and in line with Lai et al.'s (2006) argument, it can be inferred that clearly identifying the aim and purpose of a community helps the members to better understand what can be expected from the community. This in turn can result in the right population being attracted to join the community and, consequently, bonds members together and motivates knowledge sharing. In contrast, teachers' participation decreases when teachers perceive that there is not enough commonality between members.

2.4.5.2. Community

A number of factors, which have been found to affect member participation in OCoPs, and which also relate to the community aspect of the CoP theory have been grouped in this section. These factors are: building a sense of community and trust; supporting online activities with off-line activities; use of appropriate technology for communication; a continuous flow of activity; and a diverse community with a range of different roles taken on by members.

Building a sense of community and trust

A sense of community has been defined as "a feeling that members have of belonging … that members matter to one another … and a shared faith that members' needs will be met through their commitment to be together" (McMillan & Chavis, 1986, as cited in Sharratt & Usoro, 2003, p.191). In a study investigating 15 online communities within the context of business organizations, Cothrel and Williams (1999) found that community building was a key factor, which contributed to achieving high levels of member participation in those online

communities. They noted that unless time and resources are invested for activities that would enable community building, it would not be logical to expect community members to share, contribute, and generate knowledge (Cothrel & Williams, 1999).

Providing social support has been suggested as a strategy for building a sense of community (Lai et al., 2006). Scott and Scoot (2010) stress that teaching is an isolating profession where a teacher can spend the day with no or little interaction with their colleagues. Parallel with that, S. E. Booth (2012, p. 26) stated that OCoPs "enable teachers to gain equitable access to human and information resources that may not be available locally and that can reduce feelings of disconnectedness or isolation". In fact, in Thang et al.'s (2011) study, in which the OCoP the researchers built was not successful, researchers concluded that OCoPs should not only be centred around professional and job related issues, but also issues relating to social aspects of life, so that teachers can feel more like a community that know each other. Similarly, Carr and Chambers (2006) found that the lack of emotional support and compassion in the community was one of the factors that discouraged members' participation in the OCoP they investigated. These findings resonate well with Hur and Brush's (2009) observations that teachers want to participate in online communities in order to share emotions, combat teacher isolation, and experience a sense of camaraderie. This suggests that teachers want to participate in OCoPs not only for professional development purposes but also in order to build social relationships, highlighting the importance of building a sense of community within an OCoP.

In addition to building a sense of community, trust has been identified as an important factor, which allows members to participate and share in a CoP (Lai et al., 2006). According to Mitzal (1996, p. 10) "trust, by keeping our mind open to all evidence, secures communication and dialogue". It has been posited that building trust entails paying attention to five facets; benevolence, reliability, competence, honesty, and openness (Tschannen-Moran & Hoy, 2000). In their theoretical work, Sharratt and Usoro (2003) conceptualized trust across three dimensions that included these five facets. These dimensions are; integrity-based trust, benevolence-based trust, and competence-based trust. Sharratt and Usoro (2003) also generated hypotheses regarding these three dimensions, which were subsequently validated by Usoro et al. (2007) and will be briefly discussed below.

According to Sharratt and Usoro (2003) members of a community would not be willing to share information with one another unless they perceive the other members to be honest and reliable, which relates to integrity-based trust. Hence, they hypothesized that "[t]he greater one's perceived integrity in a community, the greater one's engagement in knowledge-

sharing" (Sharratt and Usoro, 2003, p. 190). The fear of losing face by posting an incorrect or misleading message has also been found to negatively affect member participation and knowledge-sharing (Ardichvili et al., 2002; as cited in Sharratt and Usoro, 2003). Consequently, Sharratt and Usoro (2003) argued that competence-based and benevolence-based trust may contribute towards overcoming such negative feelings and hypothesized that "[t]he greater the perceived benevolence in a community, the greater one's participation in knowledge-sharing" (p.191). On the other hand, if a member considers the community to have a high competence in relation to his own competence, then this may negatively affect his participation due to fear of losing face; hence "[t]he greater the trust in the competence of one's community, the less one's participation in knowledge-sharing" (Sharratt and Usoro, 2003, p.191). However, it is also important to note, that the passion for learning within a highly competent community could also motivate a member to engage and interact with others (Usoro et al., 2007).

Thang et al. (2011) reported that the fact that the teachers in their study did not feel secure enough within the community inhibited openness and self-disclosure, which consequently prevented them not only from sharing their own practice but also from commenting on others' practice. In addition, in Baek and Barab's (2005) study, the fear of being criticised in an online public space, where the records of any critique will be recorded, prevented teachers from contributing to discussions. In an effort to overcome this problem, Baek and Barab (2005) decided to create smaller and more intimate teacher groups, which were each supported by a moderator[13] and in which there would be a greater need for the members to interact and collaborate with each other. Additionally, member profiles were introduced where the members could upload information related to themselves and their practice. This provided members with a chance to look to other members' profiles and be reassured that they were real people and not imaginary characters in the online world, which in turn may have increased members' trust. In addition, S. E. Booth's (2012, p. 16) findings showed that the teachers participated and were willing "to take risks by asking difficult questions and putting their own thinking out there for debate and discussion", thanks to the established benevolence-based and competence-based trust, which members perceived within the community. One of the communities S. E. Booth (2012) examined was considered by its members to be a small community and this was perceived as a positive aspect, since members felt safe and secure enough to test their ideas and receive feedback on their work. Further, the closed-membership, that the communities had, increased integrity-based trust

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[13] The role of the moderators will be expanded in the following sections

since members perceived that what they said in the community would stay in the community (Baek & Barab, 2005; S. E. Booth, 2012). Moreover, there was a strong competence-based trust in the moderator in one of the communities that S. E Booth (2012) examined. The moderator was a well-known individual within community's field of interest. Additionally, there were rules and principles of community interactions which were posted by the moderator and which guided members' interactions enabling a safe environment for the participation to occur in. In these communities, the moderators were perceived as a "sheriff" and a "shepherd" who looked after their communities, which was found to facilitate the building of trust (S. E. Booth, 2012).

Supporting online activities with off-line, face to face activities

A number of authors have posited that it is important to support OCoP activities with offline, face-to-face events (Baek & Barab, 2005; Carr & Chambers, 2006; Hew & Hara, 2007; Hutchinson & Colwell, 2012; Lai et al., 2006). This element also relates to the previous section which discussed the importance of building a sense of community and trust. For example, Baek and Barab (2005) maintained that, since not enough trust had been built, it was difficult for teachers to respond to messages from other teachers whom they did not know or had not met face-to-face. Similarly, in Carr and Chamber's (2006) study, most of the participating teachers in the community, including those who were considered as core members, expressed that the lack of face-to-face contact with other members in the community prevented their participation and use of the community. One of the members in that study stated "[m]y experience in using Internet-based technologies to facilitate professional dialogue has been that unless you establish a rapport with somebody face-to-face in the first instance the likelihood of success is not there" (Carr & chambers, 2006, p. 152). Similarly, in their review of the literature, which has mainly consisted of studies in the field of business organizations, Lai et al. (2006, p. 46) concur that "[i]nitial face-to-face communication is an essential prerequisite to establishing higher levels of trust among agents working from geographically dispersed locations".

In a more recent study that looked into 26 induction teachers' and mentors' professional development through a wiki based online learning community approach in a Midwestern district in the United States, Hutchinson and Colwell (2012) also found that face-to-face interaction was perceived to be more personal and preferable compared to the support offered in the online wiki environment. Hutchinson and Colwell (2012) went on to argue that online discussion can be used as a supplement to face-to-face interaction but not as a replacement.

Hew and Hara (2007), based on their analysis of a teacher OCoP that utilised an email list for their interactions, concluded that organizing face-to-face conferences, which teachers are encouraged to attend, can increase familiarity among members, which in turn can help with building a sense of community and trust. In turn, this can lead to an increase in knowledge sharing between teacher members of an online community. Notably, however, some of the participants in Hew and Hara's (2007) study perceived that not knowing with whom they were communicating in the online environment and being able to hide their own identity helped members to focus on the messages posted in the community and not the people who posted them. This was found to positively affect their participation by allowing the members to share more openly.

The technologies used in the studies cited within this section comprise of a listserv (Hew & Hara, 2007), a forum (Baek & Barab, 2005), a wiki (Hutchinson & Colwell, 2012), and a website, all of which enabled both synchronous (text-chat) and asynchronous CMC (Carr & Chambers, 2006). Further, as Scott & Scott (2010, p. 172) argued, utilizing the latest technologies made it possible "to mirror face-to-face" interactions. The Webheads in Action group has been found to be using such technologies (i.e. video conferencing) in order to engage its members in collegial dialogue (Kulavuz-Onal, 2013). Therefore, it is important to determine how these virtual face-to-face meetings are perceived by the members of the WiA members to affect their online participation in the community.

Appropriate use of technology to support community interactions
Wenger et al. (2005, as cited in Lai et al., 2006, p. 44) highlight the importance of technology for OCoPs by stating "good technology in itself will not make a community, but bad technology can sure make community life difficult enough to run it". Lai et al. (2006, p. 44), citing literature in the field of OCoP, argue that technology should be designed:

- "for ease of use and learning;
- for evolution. The community itself will evolve so technology should be simple;
- for availability of access so that community activities are more easily integrated with members' work and social environments;
- from the user' perspective".

Findings of empirical research with teacher focused OCoPs seem to support Lai et al.'s claims. To begin with, in Baek and Barab's (2005) work, where they reported on the difficulties they encountered in setting up and running the Inquiry Learning Forum (ILF), technology was one of the aspects that needed to be dealt with. Whilst they attempted to create a visible and simple user interface where members could participate easily, during the piloting and the

process of website development, a number of incidents occurred, which resulted in the designers adding more functionality to the website in response to the teachers' requests relating to the use of the website. This resulted in a more complex and less usable interface within the ILF. As a response, the designers eventually developed a function, called "My Desk", which enabled users to personally customize the features of the ILF, enabling easier navigation of the website. However, Baek and Barab (2005, p.172) explained that responding to teachers' requests created "a classic contradiction" where each time a new functionality was added, teachers needed to spend extra time getting used to the changes, which resulted in a decrease in members' use of the ILF while they adapted to the changes.

Similarly, Carr and Chambers (2006) considered the design of their online community website to be simple and clear and able to facilitate the teachers' use of the online community space. The teachers, however, had to go through three stages of passwords in order to be able access the online community website, which had been embedded in a wider web network called "Think.com". Members perceived that navigation to be complex, which was found to negatively affect their participation. In addition, in Thang et al.'s (2011) study, the participant teachers' technology skills, i.e. their knowledge of how to operate computers, as well as problems related to the ICT infrastructure and access to the Internet were considered to be key factors contributing to the low rates of participation.

In contrast, Riding (2001) found that the fact that the listservs were e-mail based and messages posted in the listserv were automatically sent to all members' emails positively affected their participation and contributions. This was because members did not need to visit a website to check whether new messages had been sent. Additionally, Riding (2001) reported that one of the listservs he examined was also supported with a website which included a link to the listserv as well as a repository of the information sent to the list. This way the website acted like a "virtual centre" for the community and increased the visibility of the listserv, which could explain the relatively higher number of members in this listserv compared to the other one that was examined.

Likewise, Hew (2009), who also investigated three listserv-based online communities, reported that technology was one of the factors that contributed to the success of the online communities he examined. He identified that ease of use, technology reliability, and the ability to access existing posts were the key determinants of success, which related to technology. First, similar to Riding's (2001) findings, the use of a listserv, which automatically sends the posted discussions to members' email accounts, makes it easy and convenient for members to follow what is happening in the community. Secondly, the members perceived that the listserv

technology would not "crash" and was, thus, reliable. Thirdly, each of the listservs included a URL address where members could access the knowledge repository which consisted of all of the messages previously posted to the listserv. The messages are collated in the repository and messages with the same subject heading are collected in the same thread. This, according to Hew (2009), provided members of the community access to: different perspectives; a deeper understanding of the topic discussed; and continued reflection on others' ideas.

In light of evidence provided through the studies cited above, it can be inferred that including technologies, which are easy to use, accessible, and respond to members' interest can positively influence member participation in OCoPs.

Flow of continuous activity and roles

It has been argued that a critical mass of members is necessary for an OCoP to function properly (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009). However, no details on the exact number of members that would constitute a critical mass have been provided within the literature. Without continuous activity, mutual engagement, which is a necessary aspect of communities of practice, cannot be established (Wenger et al., 2002). Lai et al. (2006) add that if the number of participants in a community decreases significantly then it is a sign that the community is in the last phase of its life cycle, i.e. fading away/ death. Lai et al. (2006) suggest a number of different strategies in order to achieve the critical mass that would allow a continuous flow of activity in an OCoP.

To begin with, a certain level of diversity should be allowed in an OCoP (Lai et al., 2006). Synthesizing the literature on OCoPs, Lai et al. (2006) maintain that it is important for members to have commonality and a certain level of expertise in the shared domain of the OCoP. However, there should also be diversity and heterogeneity in members' levels of knowledge and expertise, in order to support knowledge creation and the sharing process. In line with this view, Hew (2009, p. 441) found that teachers perceived the rich diversity of membership to contribute towards creation of "a better repertoire of knowledgebase for learning". This diversity allowed members with similar interests to discuss and explore their practice from different perspectives (Hew, 2009). Therefore, it can be inferred that members with varying levels of knowledge and expertise should be recruited to the community. It should be noted, however, that while a diversity of views can help the learning process, it is also possible for the presence of different perspectives within the community to result in controversies, which in turn have the potential to develop into heated debates between members, unless approached carefully (Wenger et al., 2009).

Ongoing recruitment of members to the community is another strategy that has been proposed for continuation of the community. As has been discussed previously, an OCoP is a dynamic entity and members not only move between the periphery and the centre but also join and leave the community. In time, members who are considered to be at the core of the community may leave, which would then entail that those members be replaced by other members. Therefore, there is a need to have an ongoing process of member recruitment for an OCoP to be sustained (Lai et al., 2006; St-Onge & Wallace, 2003; Wenger et al., 2002; Wenger et al., 2009).

When new members join the community, they are usually positioned in the periphery. Those peripheral members, also known as "lurkers", tend to be the biggest population within an OCoP (Wenger et al., 2002). Although their participation is limited, the existence of lurkers within an OCoP is important and relates to another strategy which has been suggested to maintain activity in OCoPs. As has been previously discussed (see Section 2.4.3.2) "lurker" members, through legitimate peripheral participation, will learn and gain experience and potentially move towards the centre, and as a result of which may start to take more active roles in the community. Therefore, whilst marginal participation of peripheral members can be critiqued, caution should be taken in the level of such critiques (Lai et al., 2006). Rather, the aim should be their integration within the community in order for such members to take more active roles; this will be described below.

A number of different roles, that members can play in an OCoP, have been suggested (see Lai et al., 2006) and can be grouped into four general categories; leaders, subject matter experts, support persons, and community members. More recently Wenger et al. (2009) introduced the idea of technology stewarding as a distinct role within OCoPs and this has been included as the fifth category in this section.

The first role to be introduced is that of the leaders, who can also be referred to as community organisers (Stuckey, 2001, as cited in Lai et al., 2006) or moderators / facilitators (Cothrel & Williams, 1999; Fontaine, 2001; Wenger et al., 2002). Schlager and Fusco (2004) contend that leaders model activity and behaviour, reinforce community norms to enable a safe environment, and support the growth of other members to move to the centre and become leaders. The importance of having leaders in OCoPs has been highlighted in studies conducted with online teacher communities. In Vavasseur and McGregor's (2008) study, an online facilitator provided prompts to participating teachers by posting "thought-provoking" (p. 531) discussions, relevant resources for teachers' practice, and providing technical support when necessary. Further, this was reported to be one of the key aspects that led to the success

of the community that was created. In the OCoP, which Prestridge (2010) established, leadership rotated among members at different times and this was considered to have a positive impact on engaging members in the community. In a different study, Gairín-Sallán et al. (2010, pp. 310-311) highlighted the importance of leader skills in understanding the community needs and stated that:

> "[t]here is no single way of leading or moderating a group, rather the moderator must adapt to the needs or the level of development, skills and interests of participants […] Their social function should primarily revolve around capturing and retaining the people interested in the community objectives".

Interestingly, in S. E. Booth's (2012) study, metaphors such as "shepherd" and "sheriff" were used to describe the moderators roles in two different communities. The moderator, who was likened to a "shepherd", considered his role in the community to be "setting and maintaining the tone" rather than "directing conversations in the community" (S. E. Booth, 2012, p. 14). Similarly, the leader, who was likened to a "sheriff", having spent a lot of time and effort on building the community, considered his role to be "keeping the community safe" (S. E. Booth, 2012, p. 17). No comparisons of which moderator was more effective were provided by S. E. Booth (2012), instead she stated that, apart from the visible work, both moderators worked behind the scenes in order to nurture and maintain knowledge sharing. For example, the "sheriff" sent individual emails to different members in order to increase member participation and create diversity for rich discussions, and the "shepherd" periodically sent newsletters to members, which were perceived to be inspiring, inviting participation, and enabling trust.

The second role is that of technology stewards. Technology stewards have been described as:

> "people with *enough experience of the workings of a community* to understand its technology needs, and enough experience with or interest in technology to take leadership in addressing those needs. Stewarding typically includes selecting and configuring technology as well as supporting its use in the practice of the community" (Wenger et al., 2009, p. 25).

The emphasis on technology stewards' "experience of the workings of a community", which implies an insider view of the community, is how Wenger et al. (2009) differentiate the role from the role of an IT support person. Wenger et al. (2009) consider technology stewarding as a critical factor for the emergence and growth of a community. This stance is, in fact, supported in Baek and Barab's (2005) findings. One of the teachers in Baek and Barab's (2005, p. 170) study complained that the technology designers of ILF forum viewed "teachers as

'peripheral' participants rather than as 'central' members in the community", which was perceived to result in technology designers' "lack of sufficient understanding of the teachers' culture". This was also perceived to be the cause of technology related problems faced by teachers. According to Wenger et al. (2009), the role of technology stewards is closely related to leadership and moderation / facilitation, and the process of stewarding becomes a "creative practice that evolves along with the community and reflects the community's self-design… which includes technology" (p. 25). As discussed above, a technology steward is responsible for: understanding the needs of the community; being aware of technologies that could potentially respond to those needs; selection of the technology(ies) that is(are) respond to those needs; adoption of those technology(ies) and guiding the community in its use; and fully integrating the selected technology(ies) into the communities everyday use.

The third role is that of a subject matter expert. Those are generally the core members who regularly participate in community activities and who are knowledgeable in the practice of the community (Lai et al, 2006). "They are also knowledge brokers/ stewards/ researchers who help capture, codify, retrieve, and transfer knowledge of the CoP" (Lai et al., 2006, p. 42). In Booth's (2012) study, core members in both communities actively participated in discussions, acted like leaders of the community at different times, and helped maintain a positive atmosphere in the community.

The fourth role is that of a support person, who is considered to be the mentor who provides help to new members joining the community by introducing those members to the culture and practices of the community (Wenger et al., 2005). This definition suggests that both active and core members could be the support people in a community. A number of core members in Booth's (2012) study expressed that they felt a professional responsibility to model and enforce appropriate behaviour in the community as well as mentor teachers who had recently joined the community.

The fifth role is that of the community members, who can be seen as the non-active peripheral members of the community (Lai et al., 2006). Through legitimate peripheral participation (LPP), peripheral members can potentially become core members or facilitators in an OCoP.

It can be seen that the role of a moderator is one of the most important roles in a CoP and there has been studies that investigated the role of moderators. The role of a technology steward, however, is a relatively new concept introduced specifically for the OCoP model and, consequently, as yet there have been no studies, which have investigated the role of a technology steward within an OCoP environment. Additionally, empirical studies on member

roles in online teacher communities have focussed on the role of leaders and core members, with less emphasis placed on other members' roles. Therefore, this study aims to further investigate the roles of not only the moderators but of all of the parties involved within an OCoP.

2.4.5.3.   *Practice*

It has been stated that a CoP should be designed to offer value to its members (Lai et al., 2006; Wenger et al., 2002). While having a clear understanding of the purpose of the OCoP can guide the activity of its members, it is also important that member activity in the OCoP results in artefacts that are publicly available to community members (Lai et al., 2006; Wenger et al., 2009). This process has been defined as "participation and reification" by Wenger et al. (2009, p. 56). Reification is defined as "making into an object" (Wenger et al., 2009, p.57). Wenger et al. (2009; 2011) warn that if artefacts shared within a community are not products of discussions taking place within an OCoP and are only shared with the community without the critical engagement of other members, then the OCoP's ability to negotiate meaning is impaired and the community can become more of a network rather than an OCoP. Likewise, if discussions within a community do not develop into artefacts that are usable to members, then learning in the community becomes dependant on an individual's interpretation and memory, which can restrict the depth, extent, and impact of knowledge produced in the community (Wenger et al., 2009).

In the piloting of the OCoP they created, Carr and Chambers (2006) reported that the limited number of schools involved in their project decreased the chance that participating teachers would find other schools that had undertaken similar development projects to the one they had conducted in their workplace. This resulted in a lack of interest and discontent on the teachers' side and prevented further contributions being made. In contrast, in the online communities which they examined, Hur and Brush (2009) observed that the teachers participated in the community in order to explore ideas that related directly to their teaching practice. The interviewees explained that they inquired for ideas that were unique to their teaching contexts and as a result of responses to their inquiry, they were motivated to further participate and make contributions to the community. Hur and Brush (2009), however, acknowledged that in later stages the teachers' participation developed into friendships and they were motivated to participate in order to help their colleagues, whom were also considered to be friends.

Hew's (2009) findings are no different. He reported that the discussions taking place in the community, which were relevant to members' jobs, were considered to be a determinant

of success of the communities the members belonged to. Through such discussions, members had access to artefacts that were "directly practical and useful to [their] everyday work practice" (Hew, 2009, p. 442). Additionally, the "high-quality content" that was provided by core members, who were famous in their field of expertise, was reported to be another factor that contributed to member participation and the success of the communities (Hew, 2009). Similarly, S. E. Booth (2012) reported that the structured conversations, which took place through collegial dialogue and reified within the community as artefacts, encouraged member participation.

In conclusion, this section (2.4.5.) has presented the factors, which have been found to affect teachers' participation in OCoPs. The literature surrounding these issues has been synthesized and the section has been structured around the fundamental elements of a CoP; shared domain, community, and practice. It has been argued that a clear definition of the shared domain and purpose of an OCoP will: help attract potential participants who are interested in a community's activities; bond current members together; and motivate knowledge sharing. A number of different factors have been discussed in the community section which include: building a sense of community and trust; supporting online communication with face-to-face meetings; appropriate use of technology; and a flow of continuous activity through the different roles members take in an online community. Within the practice section, the process of participation and reification has been explained and it has been argued that members will participate in a community if they perceive value in it. It has been concluded that the more artefacts (i.e. the products of member interactions) there are in the community relating to the teaching practices of the participants, the more value those members will perceive in participation within the online community.

In addition, the studies, which have been presented in this section, backed the idea that supporting online communication with face-to-face meetings can positively influence member participation. However, I have argued that these studies utilized technologies, such as wikis and listservs, which prevented verbal and visual cues being communicated through the online communities, and which in turn might have affected teacher participation. More recent technologies (such as video conferencing) allow face-to-face environments to be mirrored within online settings and this observation provides ground for conducting the present study with the WiA community, who have been found to use such technologies to support online interactions. Furthermore, it can be seen that only a handful of studies have investigated teacher participation in online communities. Thus, there is a need for further research in this area.

2.5.   Summary and research questions

Throughout this chapter an overview of the current situation in the field of language teaching and use of technology has been provided. It has been highlighted that language teachers' uptake of technology in the language teaching process has been low, limited, and not used to its potential in spite of investments. This outcome was found to be related to the fact that integrating technology in the teaching/learning process requires more than just the ability to operate technologies. Furthermore, with current professional development opportunities such as workshops that are short term and do not provide a follow up or feedback opportunities, it can be difficult for language teachers to develop the skills required for successful technology integration. This led to the introduction of CoPs and OCoPs, which can provide collaborative and ongoing professional development opportunities, as an alternative means of providing teachers' with technology professional development (TPD). In addition, since the term CoP and OCoP are loosely used in the literature, the criteria to differentiate CoPs and OCoPs from other community-based groupings have been set out and social theories of learning have been examined in order to better understand the learning taking place in OCoPs. In addition, it has been argued that, even though C. M. Johnson (2005) has shown that the Webheads in Action (WiA) community [the case chosen to be studied in this research] can be considered to be an OCoP, the dynamic nature of OCoPs and the life cycle that OCoPs go through necessitates a reinvestigation of this issue. After this, research evidence surrounding the effects of community (online, face-to-face, or hybrid) participation on teachers' TPD has been discussed and it has been concluded that community-based approaches can potentially facilitate teachers' TPD. However, it was argued that there is a lack of empirical studies on this topic and no studies were identified that investigated EFL teachers' TPD through an OCoP approach. Last but not least, it has been argued that if OCoPs are to become an alternative approach for teacher professional development then we also need to investigate the factors that contribute to the successful running of such forms of professional development work for teachers. Thus, the literature surrounding factors affecting member participation in online communities has been presented and it was concluded that there is a lack of empirical studies on which factors affect teacher participation in OCoPs. Therefore, in line with the niches established above, the present study sets out to answer the following research questions;

- RQ1: Can the Webheads in Action (WiA) group still be considered to be an online community of practice (OCoP)?
- RQ2: Does participation in the WiA group lead to EFL teachers' perceived technology professional development?

70

- RQ3: What are the reported factors that affect member participation in the WiA group?

Chapter 3: Methodology and Methods

3.1.   Overview

As detailed in the previous chapter, this study has been undertaken to investigate EFL teachers' perceived professional development in an online community of practice (OCoP) and to explore the factors that affect their participation. In line with these intentions, this chapter discusses the methodology and describes the methods utilized in order to achieve the aims set out in the previous chapter. The chapter begins with an overview of the research approach (Section 3.2) explaining the logic for the adoption of pragmatism as the research paradigm, mixed methods as the research strategy, and case study as the research design (the research approach followed in this study is summarized in Figure 3. 1). Then, the theoretical frameworks which have formed the basis for the development of the research tools (namely questionnaires and interviews) are outlined (Section 3.3) and the process of developing those tools is detailed (Section 3.4). After providing information about the data collection procedures (Section 3.5) and data analysis (Section 3.6), the trustworthiness of the study (Section 3.7) and ethical considerations (Section 3.8) are discussed. Finally, the chapter concludes with a summary (Section 3.9).
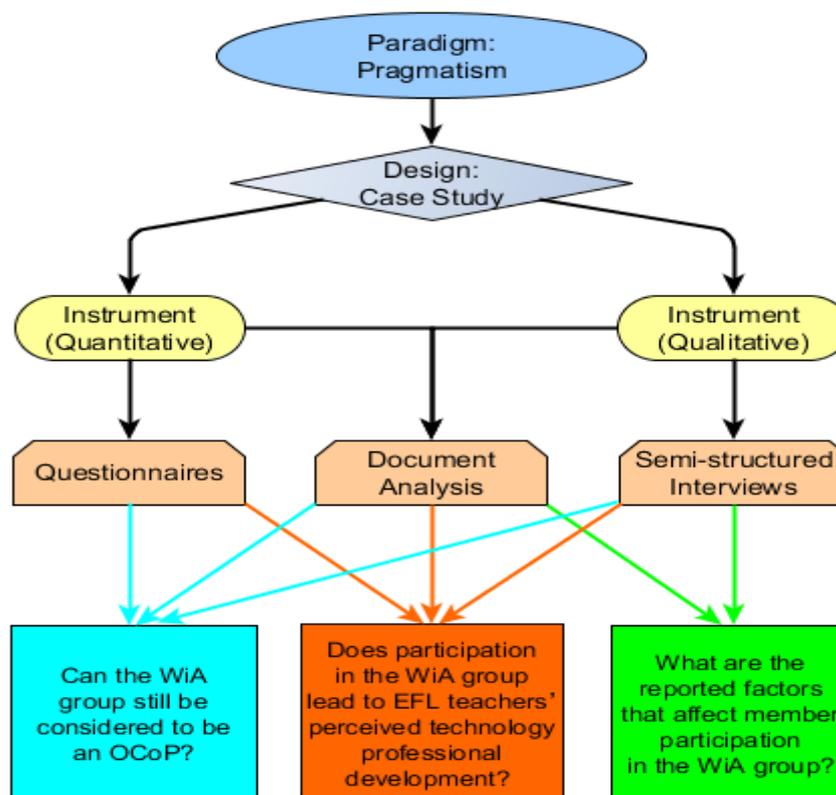
Figure 3. 1. Overview of methodology and methods

72

3.2. Research approach

3.2.1. Research paradigm: Pragmatism

A paradigm or worldview refers to "a basic set of beliefs that guide action" (Guba, 1990, p. 17). In the context of social science research and education, there used to be two major paradigms which have been referred to as the "positivist" and "constructivist" paradigms (Mertens, 2010, p. 8) or the "quantitative" and "qualitative" paradigms respectively (see R. B. Johnson & Onwuegbuzie, 2004; Sale, Lohfeld, & Brazil, 2002). In recent years, however, a third paradigm, that combines the elements of both the qualitative and quantitative paradigms, has emerged and gained popularity. This third paradigm is the pragmatist (also referred to a "mixed methods") paradigm (Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009) and it has been adopted in the present study in order to be able to best answer the research questions. Prior to detailing how pragmatism is applied in this study, the epistemological, ontological, axiological, and methodological implications of adopting pragmatism will be briefly explored to provide context for a better understanding of this paradigm and the decisions made in conducting this mixed method study.

From ontological perspectives, pragmatists avoid the use of concepts such as truth and reality which according to Teddlie & Tashakkori (2003) only cause "useless debates" (pg. XX). Pragmatists are open to accept either or both that there is only one truth that can be observed and that all individuals create their own and unique interpretations of the truth (Mertens, 2010). The criteria for judging the value of the research should be not how well it corresponds to being true in the real world but to how effective it is (Maxcy, 2003). Effectiveness is viewed as establishing that results "work" for the specific problem that is being investigated (Maxcy, 2003). Therefore, it can be said that pragmatism "focuses on … 'what works' as the truth regarding the research questions under investigation" (Tashakkori & Teddlie, 2003, p. 173), which puts an emphasis on the outcomes of the research by questioning the different stances that could be taken by believing in one thing versus another (quantitative vs. qualitative paradigm) or acting one way or another (adopting a quantitative or a qualitative approach) (Morgan, 2007).

From epistemological perspectives, pragmatists reject making a distinct comparison between objectivity and subjectivity (Teddlie & Tashakkori, 2009). For pragmatists, epistemological issues are seen as a continuum rather than a dichotomy (Teddlie & Tashakkori, 2009). For example, the researcher, along the research journey, could employ quantitative methods which do not require interaction with the participants (i.e. conducting an online questionnaire) while at other points he may need an interactive relationship with the

participants in order to find answers to complex research questions (e.g. conducting interviews about members' views of/experiences within an online community of practice).

From axiological perspectives, unlike the dichotomy of positivists (who consider research is value free) and constructivists (who consider research as value bound), pragmatists consider that what is important in their personal value system plays an important role in conducting research (Teddlie & Tashakkori, 2009). Pragmatists choose what to study and how to study it (which includes the type of analysis utilized and variables to be analysed) in a way that would predict the desired outcomes (Teddlie & Tashakkori, 2009).

Lastly, from methodological perspectives, as hinted at so far, pragmatists could utilize either or both qualitative and quantitative methods in order to gather data. In summary, the above mentioned assumptions of pragmatism have guided the research process in this study. Further information on the methodological assumptions of pragmatism in relation to the present study will be provided and discussed in the next section.

3.2.2. Research strategy: Mixed methods (MM)

Mixed methods research has been defined as:

> "the collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve integration of the data at one or more stages in the process of research" (Creswell, Plano Clark, Gutmann, & Hanson, 2003, p. 212).

In this section, the mixed method research strategy followed in this study will be explained. Prior to this, however, the principles of the quantitative and qualitative paradigms will be briefly introduced and compared, in order to contribute towards an appreciation of mixed methods as a research strategy.

To begin with, quantitative methods have been linked with a natural science (positivist) approach and are characteristically used to measure "how much" or "how many", or to establish correlations or causal relationships. The aim of quantitative studies is often to test or confirm a hypothesis or theory using deductive reasoning. Data (usually numerical) are collected in a systematic way which enables replication and the results of the research are reported in law-like statements that can be generalized to the wider population (Cohen, Manion, & Morrison, 2007). The researcher takes on the role of observer and/or interpreter of social reality which suggests that the research is less subject to influence from the researcher (Cohen, Manion, & Morrison, 2007).

In contrast, qualitative methods are more associated with a social science (constructivist) approach. Researchers who adopt a qualitative methodology, look at questions of "how" and "why" by investigating relationships between events and activities. They reject the belief that human action is guided by universal laws and agree that phenomena under investigation could be understood from the standpoints of individuals who have experienced it (Cohen et al. 2007). This experience can be understood through the researcher's interaction with the individuals. The process of data collection and analysis is flexible and heavily influenced by the researcher at all stages, which in return provides the researcher with an insider view of the field.

When it comes to critiques of these methods, the quantitative approach has been criticized since it often focuses on a small number of tightly defined variables which can be measured in numeric terms. This approach is considered to be reductionist, mechanical, and simplistic, which can prevent it from capturing the complexity of human behaviour (Cohen et al., 2007). Therefore, the generalizations produced by this kind of research might not be applicable to individual instances. Qualitative research, on the other hand, is context bound and generally involves only a few participants, which makes it difficult to repeat the studies and/ or make generalizations from the results (Cohen et al., 2007; Mertens, 2010). Additionally, the close relationship built between the researcher and the participants is considered to have an influence on the results' authenticity. The attraction of mixed methods is that it might enable a blending of the strengths and mitigation of the weaknesses of the two approaches.

Historically, the idea of integrating quantitative and qualitative research methods was rejected within academia. It was argued by some authors that the two approaches represented two contrasting paradigms with different philosophical and methodological roots (see Lincoln & Guba, 1985; Sale et al., 2002). However, such a rigid stance has become increasingly unpopular in recent years. Mingers (2003) calls the dichotomy 'crude' and both paradigms are considered valuable (Greene & Caracelli, 2003). The view that the two strategies cannot be mixed has recently changed and researchers developed theories such as 'the complementary strengths thesis', which argue that both techniques might be fruitfully combined (see Tashakkori & Teddlie, 2003). As a result, 'mixed methods' has gained popularity in recent years. The growing acceptance and use of mixed methods is associated with the recognition of research methods as simply a means of gathering or analysing data, not bound by epistemological or ontological ties (Bryman, 2012).

With the acceptance of mixed methods as a research strategy, the focus of criticism relating to the use of a mixed methods designs has shifted from the debate of paradigms to how to integrate the results within a mixed methods study (Creswell & Plano Clark, 2011). It has been stressed that simply using different methods does not justify the term 'mixed'. On one hand, Flick (2009) insisted that a satisfactory mixed methods design uses the two approaches in an even-handed and inter-related fashion. On the other, it has been suggested that qualitative or quantitative methods might be prioritized in the mix to suit the nature of the inquiry (Creswell et al., 2003; Ivankova, Creswell, & Stick, 2006). Moreover, Creswell and Plano Clark (2011), based on the priority given to one method and the sequence of the data collection, proposed converging, connecting, and/or embedding the data, in order to achieve integration. In the present study, priority is given to qualitative methods but the data collection started with a quantitative method (an online questionnaire) and the results are converged to achieve integration, following analysis of the data collected by all methods.

Tashakkori and Teddlie (2003) highlight three advantages of using mixed methods over single approach designs: they can answer research questions other approaches cannot; they provide stronger inferences; and they allow a greater diversity of views to emerge. Greene, Caracelli, and Graham (1989) further illustrate the flexibility and adaptability of using mixed methods designs and provide five possible purposes for adopting a mixed methods design:

- triangulation: validating and corroborating the results attained by different methods to ensure that they are not just an artefact of the means of data collection, inquirer bias or the context of the inquiry

- complementarity: results from one method can clarify or elaborate on those obtained from another, improving interpretability

- development: results from one method can be used to develop the other, e.g. feeding into sampling decisions and question design

- initiation: the different methods can throw up paradox and contradiction and increase the breadth and depth of results and interpretations by analysing them from different perspectives, and

- expansion: can extend the scope of the inquiry by broadening its range.

Achieving complementarity, alongside some methodological triangulation, was of particular relevance in designing the present study. Three methods, namely questionnaires, interviews, and document analysis, have been utilized in the present study. Since there were over 1000 registered email addresses within the WiA Yahoo! group, the use of a questionnaire

was preferred in the initial stage, as it is particularly useful when research subjects are located in geographically dispersed areas and can enable a researcher to reach a larger audience in a more time and cost effective way (Bryman, 2012; Sheehan & Koy, 2004). The questionnaire method was, therefore, utilized in order to reach as many WiA members as possible within a short time frame. It is important to note, however, that the questionnaire method only allows for the gathering of a limited amount of information and does not make it possible for respondents to provide more detailed explanations. Questionnaires are, therefore, considered to be inadequate for understanding human behaviour (Bryman, 2012). Interviews, on the other hand, make it possible to address more complex and deep issues such as the factors affecting members' participation (Cohen et al., 2007) and were, thus, preferred to questionnaires for understanding the factors affecting members' participation within the WiA context. Nevertheless, similar to other data collection methods, the interview approach is also considered to have limitations, such as the honesty of the respondents (Cohen et al., 2007; Crowne & Marlowe, 1964). To address this issue, document analysis of nine-month message history was used in order to support, challenge, and/or revise the conclusions that were reached based on the questionnaire and interview data, thus allowing complementarity and triangulation of the findings. The data collection methods were matched to the research questions as shown in Table 3. 1 and how these methods were utilized in answering the research questions is explained below.

For the first research question, evidence for the fundamental elements of a community of practice (*community, shared domain, and practice*) was sought through the data gathered via all of the data collection tools. Demographic information on the members that form the WiA group (*community*) was gathered through the use of a questionnaire. Then, the interviews and document analysis was intended to identify community members' shared interests (*shared domain*). In addition, the document analysis aimed to investigate the nature of the messages (*practice*) that community interactions resulted in.

The answer to the second research question, which investigated perceived technology professional development of EFL teachers in the WiA group, was also sought through the data collected from all of the three research methods introduced above. EFL teachers' perceived technological, pedagogical and content knowledge (TPACK) levels were measured via the questionnaire and the data from both the interviews and document analysis was used for complementing and/or triangulating the findings.

Table 3. 1. Research questions matched to data collection tools

Research Question	Questionnaire	Interviews	Document Analysis
RQ1. Can the Webheads in Action (WiA) group still be considered as an online community of practice (OCoP)?	✓	✓	✓
RQ2. Does participation in WiA group lead to EFL teachers' perceived technology professional development?	✓	✓	✓
RQ3. What are the reported factors that affect member participation in the WiA group?		✓	✓

The answer for the third research question, which examined the factors affecting member participation in the WiA group, was sought through the interview data and the findings were supported with document analysis.

To summarize, It is considered that the use of multiple sources of data, to some extent, made it possible to mitigate the weaknesses of each of the research methods, which would arise if they were to be used in isolation, and increased the trustworthiness (validity and reliability) of the present study (the trustworthiness of the study is discussed in more detail in Section 3.7).

3.2.3. Research design: Case study

Case study has recently become a frequently used research design within the field of social sciences and education (Verschuren, 2003). In the literature, however, there are not clear boundaries on what counts as a case. The case might be a process, event, an individual or a community (Cohen et al., 2007; Stake, 1995). In the present study, the case under investigation is the Webheads in Action (WiA) community. A case study design provides the reader with clarity and intensity of the issue that is being studied, which otherwise would not be possible through analytical reporting formats (Yin, 2003, 2014). According to Yin (2014) case study designs can be utilized when:

- The researcher cannot manipulate the behaviour of the participants in a study.
- The researcher wants to cover contextual conditions because s/he thinks they are related to the case that is being studied.

- The boundaries are not clear between the case and the context.

As such, rather than trying to manipulate the behaviour of WiA members, the aim of this study was to understand the outcomes of members' participation in the WiA and the factors affecting members' participation in the community from their own perspective. It is considered that contextual factors such as the interactions taking place online and the specific computer mediated communication (CMC) tools they utilize cannot be treated in isolation from the case. Additionally, the nature of case study, in that it relies on multiple sources of evidence, which can be used for data triangulation to increase the trustworthiness of a study (see Section 3.7), suited the mixed methods research strategy adopted in this study and was another factor contributing to the selection of a case study design (Yin, 2014).

Like every other research design, case study designs have their own limitations. Some researchers have criticized case study designs for lacking in representativeness of the cases, which consequently leads to the limited generalizability of the findings (see Noor, 2008; Stake, 2000). While the generalizability of the case study design is under discussion, Stake (2000) suggests that researchers conducting case study research attend to unique characteristics of the case, because even though the results cannot be generalized, the readers can evaluate the findings in the light of their own experiences. Bassey's (1981) concept of 'relatability', which was coined as a result of a comprehensive review of literature into single events, is of particular relevance at this point. Bassey (1981) concluded that the focus in case study research should be the relatability and not the generalizability of the findings:

> "I submit that an important criterion for judging the merit of a case-study is the extent to which the details are sufficient and appropriate for a teacher working in a similar situation to relate his decision making to that described in the case-study. The relatability of a case-study is more important than its generalizability" (p. 85).

Another criticism of the case study design comes from Willig (2008) who suggests that "it is important to remember that case studies are of necessity partial accounts of a person in a situation; they can never capture the individual in his or her entirety" (p.80). With regards to this criticism, the present study does not claim or attempt to capture all aspects of the participants in the study but rather focuses on elements that relate to their experiences within the WiA community and to the factors affecting their online participation and its perceived effects on their professional development.

Finally, due to the lack of clear boundaries regarding what would count as a case, there has been considerable variation in the application of the case study design, resulting in a range of different types of case study designs being employed in previous research studies. The next

section will provide information on the types of case study designs and the design that has been employed in the present study.

3.2.3.1.   *Types of case study designs*

There are a number of different categorisations of case studies in the literature, which are mainly based on either the aims of the research or the methodology employed. To begin with, in a reconstruction of educational case study designs, Bassey (1999) categorized three different types of case studies: 1) theory-seeking and theory-testing; 2) story-telling and picture-drawing; and 3) evaluative. The first focuses on the issue rather than the case being studied in order to contribute to the development of educational theory and practice. The second attempts to provide descriptions of educational events, projects, systems or programs in order to illuminate a theory. The last design is aimed at determining the usefulness of an educational action and is not necessarily interested in contributing to a theory.

Stake (2000), on the other hand, grouped case studies as: 1) intrinsic, which is similar to Bassey's (1999) story-telling and picture-drawing category and in which a case is studied for the intrinsic interest in the case itself; 2) instrumental, which is similar to Bassey's (1999) theory-seeking and theory-testing category where a case is selected to investigate a phenomena or research question in order to gain insight and understanding into a phenomena and/ or develop a theory; and 3) collective where multiple cases are studied in order to reach a collective understanding of the topic under investigation.

In contrast to Bassey (1999) and Stake (2000), Yin (2014) classified case studies as single or multiple case designs and holistic or embedded. Yin (2014) suggests five rationales for deciding on a single case design; the case to be studied should be *critical, unusual, common, revelatory, or longitudinal*. The first rationale is that the case to be selected should be *critical* to the theoretical framework being studied. The case, then, can be used for testing out the theory, thereby, providing the chance for the researcher to confirm, challenge, or extend the theory. The second rationale is that the case should represent an *extreme* or *unusual* case. Yin (2014) provides an example from clinical research in order to further explain this rationale; in clinical research the study of a specific injury or disorder might provide insights into normal health processes. The third rationale is that the case to be studied should be a *common* case. In contrast to an *extreme* case, the *common* case is studied in order to investigate the circumstances and conditions of everyday events since the findings might shed light on social processes. The fourth rationale is that the case should be *revelatory,* which suggests that it provides the opportunity to study phenomena which were previously inaccessible. The fifth and final rationale is that the case should be *longitudinal,* which suggests that the same case is

studied at two or more points in time with regular or irregular time intervals. Additionally, when a single case study has a subunit or subunits being analysed, it becomes a single case embedded design. For example, the study of a public funding program becomes a single embedded case when the researcher includes the analysis of projects that are funded by that public fund. Each project that is analysed becomes the embedded part of the single case design. On the contrary, if the researcher examines only the global nature of the case, without analysis of the subunits, then it can be considered to be a holistic single case study.

It would be difficult to find a tailored category for each specific case study. However, the categorisations briefly discussed above cover the majority of the research studies described in the literature. In light of the information presented above, the present study can be considered as *theory-seeking and theory-testing* (Bassey, 1999) and *instrumental* (Stake, 2000) since it attempts to test and contribute to the development of online communities of practice theory and research on effective teacher professional development. However, it should be acknowledged that this is a single case study and therefore it is not possible to generalize findings from this study alone (see Section 6.3).

Aditionally, the Webheads in Action (WiA) community provides a *critical* and *extreme* case (Yin, 2014), because it follows a bottom-up approach (C. M. Johnson, 2005) and has existed for over a decade (Kulavuz-Onal, 2013) unlike most of the communities in previous studies, which had existed for less than a year and generally followed a top-down mandate (Blitz, 2013). Such top-down communities contradict the assumption of sociocultural theory that "teachers will be in charge of creating, leading, and sustaining online collaborations for learning and professional development" (Blitz, 2013, p.12). Furthermore, factors that affects teacher participation in OCoPs is a relatively new field of research, which has received increasing attention in recent years, thus the case study of the WiA community can also be considered as *revelatory* (Yin, 2014). Finally, since the study focuses on the WiA community as a unique case but includes the perspectives of different members who belong to this community as subunits of analysis, we can conclude that this study follows an embedded single case study research design (Yin, 2014).

3.2.3.2. *Participants*

The participants in this mixed methods study were the members of the WiA community (the case). In the initial stage of data collection, 69 WiA members responded to the online questionnaire and were asked if they would be willing to participate in a follow-up interview. Those members, who had provided their contact details for the follow-up interviews, were then contacted. As a result, 24 members with varying levels of participation in the community

were interviewed (detailed information on the participants is provided under procedures in Section 3.5)

3.3.   Theoretical frameworks

The use of Activity Theory (AT) and Technological Pedagogical and Content Knowledge (TPACK) frameworks has guided the development of the research tools in the present study. TPACK is a generic framework, that has recently been developed by Mishra and Koehler (2006). This framework was utilized for the development of a questionnaire, which aimed to measure the perceived technology knowledge and technology integration skills of teachers. Likewise, AT is also a generic framework that has been used across different disciplines (Engeström, Miettinen, & Punamaki, 1999) and the use of which has been increasingly oriented towards technology and online communities (see for example Kaptelinin & Nardi, 2012; Sam, 2012). Therefore, the use of AT fits well within the context of the present study and has guided the construction of the interview schedule, which was developed for this study. The following sections offer an introduction to the TPACK and AT frameworks and how they have been adopted for this study.

3.3.1.   Technological pedagogical and content knowledge (TPACK) framework

As has been discussed in the literature review, the knowledge that is required for technology integration can differ from one subject to another. In this sense, it is considered that a framework that takes into account the subject matter (*content*) in the process of technology integration would better suit the context of this study that investigates technology integration in English as a foreign language (EFL) settings. In an effort to answer the question of teacher requirements for successful technology integration, Mishra and Koehler (2006) introduced one such framework that they named "technology pedagogy and content knowledge" (TPACK). Thus, the TPACK framework is deemed appropriate to adopt in the present study.

3.3.1.1.   Components of TPACK

TPACK is a framework that extends Shulman's (1986) teacher knowledge framework, which was addressed as 'pedagogical content knowledge (PCK)', through the addition of the 'technology' component (Mishra & Koehler, 2006). According to this framework, a teacher's ability to integrate technology in their teaching is determined by the dynamic interplay of the TPACK components (see Figure 3. 2)
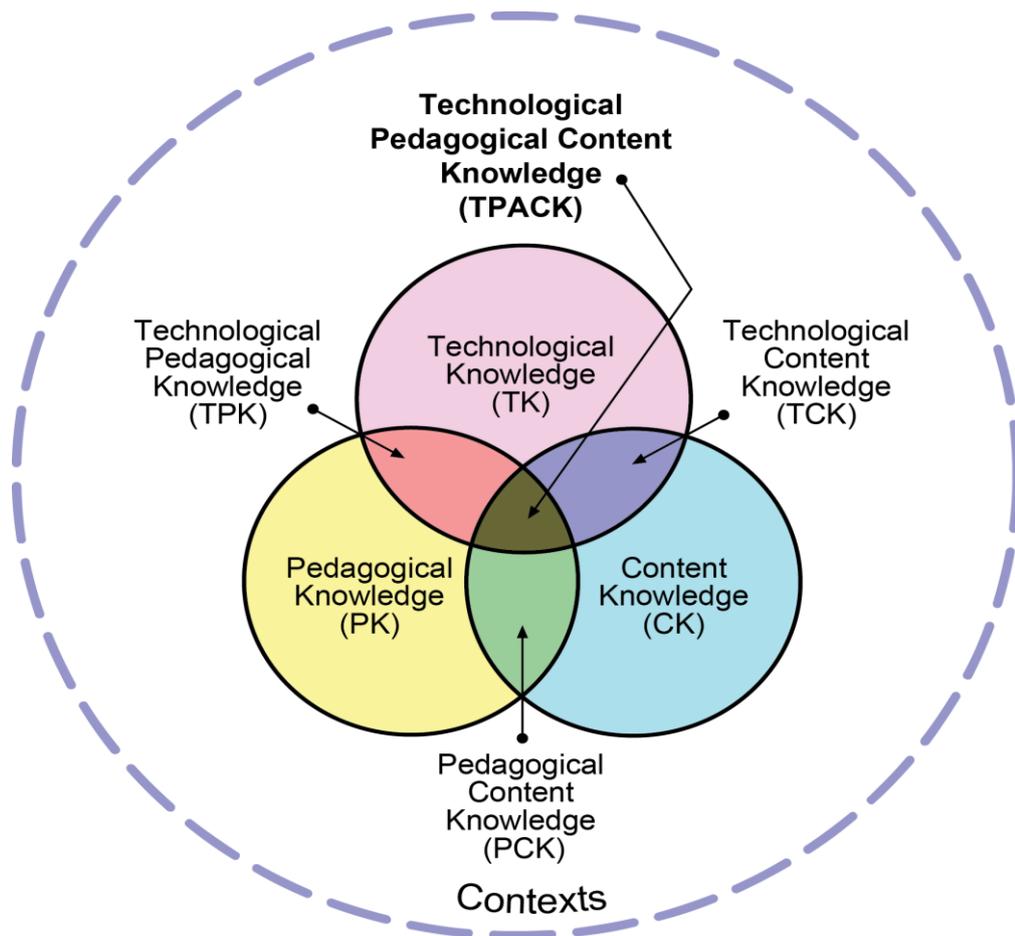
Figure 3. 2. The framework of TPACK (source: http://tpack.org/). Reproduced with permission of the publisher, © 2012 by tpack.org

As can be seen from Figure 3. 2, there are three main components of the TPACK framework which are represented as circles; Technology Knowledge (TK), Content Knowledge (CK), and Pedagogy Knowledge (PK). The first circle at the top, TK, refers to the skills that are required for operating and working with technologies. In Koehler and Mishra's (2009) definition, TK is a dynamic component, because technology has a fast pace of change. The second circle on the left, PK, can be described as the knowledge about methods and processes of teaching and learning (Mishra & Koehler, 2006). PK involves an understanding of how students learn as well as knowledge of classroom management techniques, lesson planning, and assessment. The last circle on the right, CK, represents the knowledge of the subject matter that teachers are expected to teach (Mishra & Koehler, 2006). For example, the content that is taught/ learned in a history class would be different to the content in a mathematics class.

The interplay of these main circles constitute the four remaining components of the TPACK framework; Pedagogical Content Knowledge (PCK), Technological Content Knowledge

(TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical and Content Knowledge (TPACK). To begin with, PCK includes the transformation of learning content in a way that would make it easier to be learned by students. The teacher interprets the subject matter, finds multiple ways of teaching the subject matter and then tailors the teaching subject and chooses methods in a way that would suit the needs of the learners (Shulman, 1986). Next is TCK, which is described as the "knowledge about the manner in which technology and content are reciprocally related" (Mishra & Koehler, 2006, p. 1028). Teachers need the mastery of, not only the content they teach, but also awareness of how technology could enhance or constrain the teaching of the subject matter. TPK, on the other hand, is the understanding of how the use of particular technologies in particular ways can change teaching and learning in general (Koehler & Mishra, 2009). This includes an understanding of the existence of a variety of technologies that could be used for a particular task and the ability to choose from a variety of tools based on their affordances and/or constraints. Lastly, TPACK is at the centre of this three-circle diagram where each circle (technology, pedagogy, and content) intersects. TPACK forms the basis of effective education with technology (Koehler & Mishra, 2009). It requires an understanding of how to use technology in a meaningful and pedagogically sound way in order to be able to provide opportunities for learners so that they can better understand the content to be learned (Koehler & Mishra, 2009). Having introduced the framework, the following section will present a number of critiques of the TPACK framework and its adaptation in the present study in response to those critiques.

3.3.1.2. Adaptation of TPACK in the present study

Since its introduction, TPACK has become a widely investigated framework and a considerable amount of both theoretical and empirical studies related to the framework have accumulated over the years (see Chai, Koh, & Tsai, 2013; Koehler, Shin, & Mishra, 2012; Voogt, Fisser, Roblin, Tondeur, & van Braak, 2012). Researchers relate the popularity of TPACK to the simplified explanation of the framework and the flexibility it allows researchers, in adapting its use to different contexts. However, it has also been asserted that this simplistic view prevents researchers from understanding the complex relationships between and among the components of the framework and from establishing the boundaries of these components (Angeli & Valanides, 2009; Graham, 2011). Graham (2011) states that in order to create a coherent theory, all of its components need to be clearly defined and Angeli and Valeniedes (2009) maintain that clear definition of the components would increase the discriminating value of the TPACK framework. Both authors concur that in its current form the TPACK components have not been clearly defined. Likewise, various attempts, which aimed to develop tools for measuring TPACK, have failed in clearly identifying the seven components of

the TPACK framework (see for example Archambault & Barnett, 2010; Koh, Chai, & Tsai, 2010; Lee & Tsai, 2010). These findings support the idea that the "fuzzy" definitions of the generic TPACK framework make it difficult for the TPACK components to be clearly reflected in the measurement tools. In line with above statements, it is acknowledged that CK plays a significant role in understanding the TPACK framework; however, the content knowledge of different subjects differs, which in turn results in different variations of the TPACK framework for different subject matters. Therefore, there is a need for subject specific applications of TPACK for a better understanding of the framework and various calls have been made for such subject specific TPACK research in recent years (see Brantley-Dias & Ertmer, 2013; Chai et al., 2013; Koehler et al., 2012; Voogt et al., 2012).

In addition, researchers have critiqued the validity and reliability of the TPACK measurement tools developed (Koehler et al., 2012; Voogt et al., 2012). Koehler et al. (2012) state that it is important to develop tools that would successfully measure the components of the TPACK framework and provide statistics on the validity and reliability of the tools that have been developed. According to their review of the literature, the validity of over 90 % of the tools was not successfully established by the authors and, further, about 69 % were not able to address reliability issues.

A review of the literature on TPACK related studies revealed no previous attempts to apply the framework to the EFL context. Due to the reasons stated above a decision was made to develop a TPACK survey that would suit the EFL context. After a review of the literature relating to EFL teachers' technology, pedagogy, and content knowledge-bases, an initial item pool of survey items was developed and various strategies such as content validation, construct validation and Cronbach's alpha test were applied in order to validate and establish the reliability of the survey (further details on the development of the EFL-TPACK questionnaire are provided in Section 3.4.1).

3.3.2. Activity Theory (AT)

Activity Theory (AT) emerged in the late 20th century and has been evolving for many decades ever since (Engeström, 2001). AT primarily builds upon the work of Vygotsky (1978) and is based on the premise that there is a dynamic interrelationship between consciousness (the mind) and activity (Jonassen & Rohrer-Murphy, 1999). In this sense, AT also fits the conceptual communities of practice (CoP) framework that guides the present study. However, as Masterman (2008) stated, AT is "misnamed" since it does not have the explanatory or predictive properties of a theory. Rather, AT provides researchers with an analytical framework for analysing how learning occurs at social and individual levels. More specifically

AT offers the possibility to investigate how individuals take in information and respond to their environment while they participate in both individual and shared activities (Holzman, 2006; Kuuti, 1996). Therefore, AT can be considered to be more of a method than a theory. Engeström (1993, p. 64) stated that AT had been "the best kept secret of academia" until the mid-1990s, but it has recently started to be increasingly utilized in various academic research contexts (Engeström et al., 1999). Previously, AT has been used within the field of human computer interaction (HCI) and online community contexts, thus the use of AT as a method has been deemed appropriate for this study (see Baran & Cağiltay, 2010; Jonassen & Rohrer-Murphy, 1999; Kaptelinin & Nardi, 2012; Kuuti, 1996; Sam, 2012). Three generations of AT have been identified in the literature. However, the second generation AT has been considered to best suit the present study. Thus the discussion in this section will focus mainly on the second generation AT and its components (for further details on first and third generation Activity Theory see Engeström, 2001).

3.3.2.1.   Components of AT

There are seven components of AT which have been represented in Figure 3. 3. As can be understood from the figure below, an activity system is complex. Therefore, it is useful to describe each of the elements of AT separately in a fashion that also highlights how those elements are interrelated, since, in this way, the process of structuring and analysing an activity system can be simplified.

To begin with, the first element of AT is the *Subject*, who is the most crucial part of an activity system. The *Subject* is the individual who undertakes the activity (Engeström, 1987). The *Object/Objective* could be defined as the direct goals or motives that the *Subjects* want to accomplish in an activity system (Engeström, 1987). For this to happen, however, there is a need for mediation in the social environment. Therefore, *Object* could also be identified as the focus of the collective activity. The *Subjects* who are engaged in the activity, through the use of *Tools or Signs*, communicate and/ or conduct the activity. In other words, the *Tools and Signs* mediate the interactions between the *Subject* and the *Object*. The *Subject's* interactions to achieve their *Objective* through the use of *Tools and Signs* lead to an *Outcome* which is parallel to but not necessarily the same as the *Object/Objective*.

In addition to these main elements, since activity is considered to be social, there are three subsidiary elements to an activity system; *Community*, *Rules*, and *Division of Labour*. The *Community* stands for "multiple individuals or subgroups who share the same general object" or identify with the object (Roth & Tobin, 2002, p. 114). *Rules*, on the other hand, stand for the implicit or explicit regulations and norms, which direct actions and interactions (Roth & Tobin,

2002). Finally, *Division of Labour* is defined as the roles each individual plays towards accomplishing the *Object*. All of these steps are in line with the principles of Sociocultural (Vygotsky, 1978) and Situated (Lave & Wenger, 1991) learning theories, both of which have guided the present study.
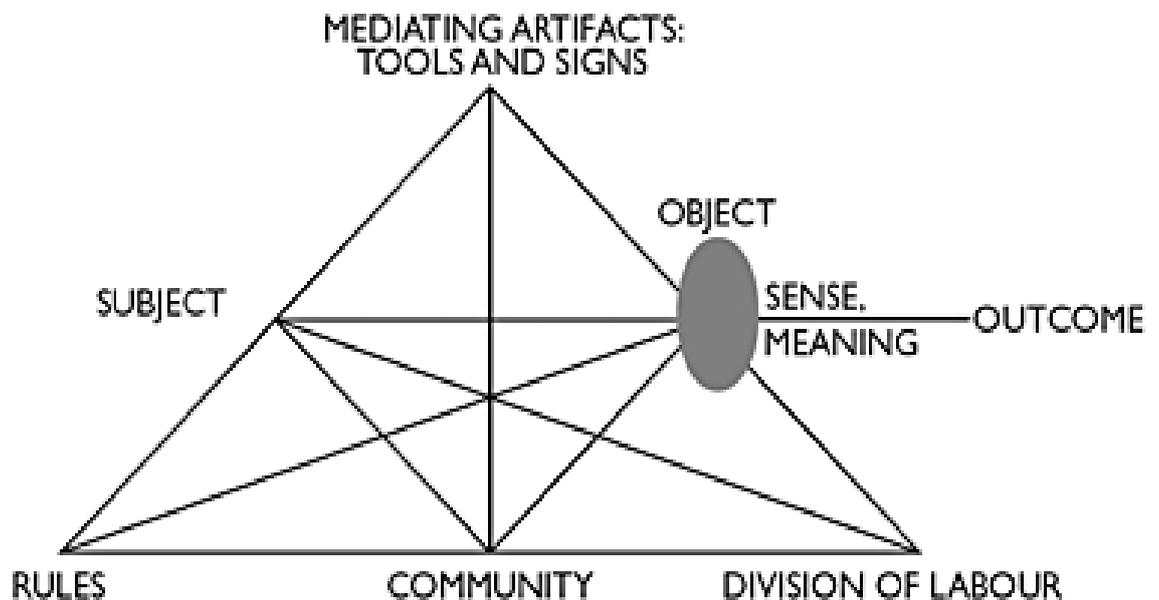
Figure 3. 3. The structure of human activity system (Engeström, 1987, p. 78)

3.3.2.2. The use of AT in the present study

AT is considered to be an "underused, but powerful, conceptual tool for researchers to use when studying digital life" (Sam, 2012, p. 83). According to Jonassen and Rohrer-Murphy (1999) and Sam (2012), the application of AT in studying constructivist learning environments can help a researcher to uncover the relationships between the nexus of people, technology and digital life. Some researchers criticize the use of AT, since there are no clear-cut procedures for its application; however, this can also be seen as an advantage since this provides flexibility, which allows AT to be adapted to various contexts and situations (Murphy & Rodríguez-Manzanares, 2008). Online teacher communities are one such context, in which AT has previously been successfully utilized (see Baran & Cağiltay, 2010), providing further support for the selection of AT for the present study.

The use of AT also fits well with the more qualitatively oriented nature of the presented study for two reasons identified by Sam (2012):

a) "Activities can only be understood in context, the researcher must be present to experience the activity in situ […] Therefore, whatever the focus of the research, the

researcher should also be an active participant in the process" (p. 86). It should be noted that participation in digital domains is not possible without being active in some way because even the most passive activities would necessitate a certain level of activity. In this sense, my peripheral participation within the WiA community in order not to affect community dynamics can still be considered to be active participation which helped me better understand WiA community in situ (my peripheral participation in the community is detailed in Section 3.7.1).

b) AT has its roots in Vygotsky's (1978) Socio-cultural Theory (SCT) and aligns well with the predominantly qualitative nature of the present study.

In addition to these points, researchers who try to understand activity in situ use multiple forms of qualitative data collection techniques to gain a better understanding of the activity through approaching it from multiple perspectives (Jonassen & Rohrer-Murphy, 1999; Roth & Lee, 2007), which suits the mixed methods research strategy adopted in this study. Furthermore, in the case of the WiA community, which can be regarded as a complex social system, AT provides a well-structured framework for the analysis of the data in a meaningful way. The aim of AT is to provide a comprehensive description of the activity, not the whole human phenomena (which would be rather difficult and almost impossible to accomplish). Therefore the main unit of analysis is the activity or activities under investigation. The framework divides the parts of the activity system (the collective activity of the online community) and attempts to explain the interrelationship between the elements of the system. Consequently, in the present study an interview schedule was developed through the use of AT, which aimed to reveal the activity system of the individual participants and the WiA community (further details on the development of the interview schedule are provided in Section 3.4.2).

3.4. Instruments utilized in the investigation

Since 'case study' covers a broad range of investigations, the methods and instruments utilized in case studies can vary widely (Marshall & Rossman, 2011; Stake, 1995; Yin, 2014). Case study design in this sense suits the mixed methods approach adopted in the present study where a questionnaire, semi-structured interviews, and document analysis were used. As suggested earlier in section 3.2.2, the present case aimed to achieve a richly triangulated picture of the members' experiences of the WiA community through the utilisation of multiple data collection tools. This section discusses the aim, development, and content of each of these tools (questionnaire, interviews) and the document analysis that was conducted.

3.4.1. Questionnaire

An online questionnaire was utilized rather than a pen and paper questionnaire due to the present study being carried out with members of an online community. There were a number of reasons for adopting the questionnaire approach in the initial stage of the study;

a) to be able to reach out to as many members of the WiA community as possible so that the results would be representative of the community (Bryman, 2012; Sheehan & Koy, 2004),

b) to collect information on the perceived technological pedagogical and content knowledge (TPACK) of community members, which would be later used to compare whether there was a significant difference in the TPACK scores of members with different levels of participation,

c) to gather demographic information about the number and characteristics of individuals who participate in the community, and

d) to create a pool of potential interview participants who were willing to volunteer so that I, a recent member who was not known to many of the other members, would not have to continuously disturb and abuse community's public space.

3.4.1.1. *Design considerations for developing and conducting the questionnaire*

The questionnaire in the present study was prepared online utilizing Google forms (www.forms.google.com). Online surveys allow the results to be automatically collected into a spread sheet, which can be directly copied into data analysis software rather than requiring each response to be typed up by hand (Bryman, 2012). This is considered to not only save time but also prevent any human error that could potentially occur when transforming responses from paper to electronic format (Bryman, 2012). Additionally, the absence of the researcher is considered to diminish the researcher effects on the respondents. Further, respondents can complete the survey at a time that is convenient to them and at a pace that they feel comfortable with (Bryman, 2012). However, while the absence of the researcher may diminish the researcher effect, one issue that remains, is that there would be no one present to assist respondents if they experience any problems (Bryman, 2012). In order to address this limitation the questionnaire items in the present study were tested and checked for double barrelled and ambiguous sentences by fellow PhD students (Lietz, 2010). Furthermore, the researcher's contact details were provided at the beginning, as well as the end, of the questionnaire and the participants were reminded that they could contact the researcher if they experienced any problems.

An additional limitation of the questionnaire method is that the number of questions within the survey should be constrained in order to avoid putting respondents off completing the survey (Dillman, Symth, & Christian, 2014). The survey developed for the present study was organized in such a way that it should not take a long time to complete. Complex sentences that require more attention were placed at the beginning of the survey, when the respondents would have been more focused. Furthermore, simpler questions as well as questions asking for demographic information, both of which are easier to complete, were positioned at the end of the questionnaire (Lietz, 2010). Additionally, it has been reported in the literature that the inclusion of a progress bar can help to decrease the number of individuals who abandon the survey before completing (Couper, Traugott, & Lamias, 2001). Therefore, a bar showing the respondent's progress was available at the beginning of each section. An additional benefit of online questionnaires is that they allow a researcher to make a question "required", which means that the respondents have to answer all of the questions in each section in order to be able to continue on and complete the questionnaire. With the exception of the demographics section (in order to allow anonymity if participants wanted to stay anonymous), each section was made "required", which prevented missing data. Dillman et al.'s (2014) suggestions were followed in order to establish trust and increase the response rate;

- the authenticity and legitimacy of the research was communicated to the respondents by providing the contact details of the researcher and details about the aim of the study,
- the respondents were assured that confidentiality would be maintained,
- Google's professional form designs were utilized,
- the participants were informed about how their responses would be used, and
- reporting back the results to the WiA community was offered as an incentive.

3.4.1.2. *Content of the questionnaire and piloting*

In Section 3.3.1, it has been stated that no attempts to apply the TPACK framework to the EFL context have been identified in the literature, thus I aimed to create a valid and reliable questionnaire for measuring TPACK in EFL contexts. The information in this section provides a summary of the process through which the EFL-TPACK questionnaire was developed (detailed information about each step of the EFL-TPACK survey's development and validation is provided in Appendix 1). The development and validation process took place between April and July 2013 and involved three main steps: 1) construction of an item pool; 2) establishing content validity: and 3) establishing construct validity, discriminant validity, and reliability.

Initially, a literature review into the main knowledge-bases of the core TPACK components, in relation to the EFL context, was carried out and publications such as CALL reviews, general and language teaching specific TPACK publications, and standards on technology and language teacher education were used in the writing of the questionnaire items. As a result, a pool of 76 items was created.

Following this, the content validation[14] of the questionnaire was carried out in line with Lawshe's (1975) quantitative approach due to its acceptance and popularity with researchers (see Wilson et al., 2012). In order to validate the content of the questionnaire, subject matter experts (henceforth experts), who in this case were members of the editorial boards of CALL related journals, were recruited (Lawshe, 1975). An individual email invitation (including the URL link to the online questionnaire) was sent to 164 experts from nine CALL related journals[15]. 36 experts (22 %) participated in this part of the validation process. The 22% response rate can be considered to be low (Nulty, 2008). However, that was an anticipated outcome considering that the group of potential participants consisted of a very niche population, who were very busy. Nevertheless, Lawshe's (1975) content validation approach could have been conducted with as few as five participants; therefore having 36 experts increased the validity and realibility of the analysis at this stage of the validation process.

The experts were provided with the original definition of each component of the TPACK framework and were asked to rate each of the questionnaire items on a three-point scale (essential, useful but not necessary, not necessary). Based on the responses received, Lawshe's (1975) content validation formula was applied for each item to determine whether it passed the validation criteria. The results suggested 55 out of the 76 items were valid. It was found that most of the items which did not meet the validation criteria, were from the technology knowledge (TK) section, for which the content of the items was limited to those technologies that were used in the language learning/teaching process. This was in line with the main criticism given by the experts in the section where they were asked to provide their feedback on the questionnaire items; namely that TK was under-represented within the items given in that section. As a result the number of validated items in the TK section was

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[14] Content validity refers to the degree of overlap between an instrument and the theoretical construct which it is designed to measure (Lawshe, 1975).

[15] The journals editors of which were contacted were; 1) Computer Assisted Language Learning-Electronic Journal (CALL-EJ), 2) Computer Assisted Language Learning, 3) International Journal of Computer Assisted Language Learning and Teaching (IJCALLT) Journal, 4) Language Learning and Technology, 5) System, 6) The Computer Assisted Language Instruction Consortium (CALICO) Journal, 7) The JALT CALL Journal, 8) The Journal of Teaching English with Technology (TEWT), and 9) The Journal of the European Association for Computer Assisted Language Learning (ReCALL).

considerably lower than those in other sections of the questionnaire. Therefore, 10 items were added/revised based on the feedback received from the experts in order to have a questionnaire with a balanced number of questions for each component of the TPACK framework. This resulted in a 65-item questionnaire. However, adding new items to the questionnaire neccessiated a new stage of validation.

In order to validate the 65-item questionnaire, EFL-TPACK was administered to a sample of EFL teachers for construct and discriminant validity and reliability. In this final stage, 542 EFL teachers from over 70 different countries participated in the online administration of the EFL-TPACK[16]. The participants were asked to rate themselves on each item using a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). Additionally, demographic information such as length of teaching experience, whether native or non-native English speakers, and the frequency of technology use in their teaching was collected.

First, the collected data was analysed using exploratory factor analysis (EFA) in order to establish the construct validity[17] of the questionnaire, which had seven components in line with the TPACK framework (Field, 2009; Thompson, 2004). EFA was used in this stage because it allows a researcher to identify the latent variables that constitute the underlying variable, in this case the TPACK framework, (Field, 2009). The EFA results yielded a 50-item and six-factor solution, with each TPACK component emerging as an individual factor with the exception of pedagogy knowledge (PK) and pedagogical content knowledge (PCK) which merged as one single factor. While there was some overlap between the items written in PK and PCK, attention was paid in order to write PCK items with a clear focus on language teaching (see Appendix 1). However, respondents did not seem to be able to distinguish between the two and as a result they merged together as one factor which was named PCK. This outcome was not a surprise since this is a common problem, which has been observed across other TPACK validation studies (see Archambault & Barnett, 2010; Koh et al., 2010; Lee & Tsai, 2010). In fact, similar arguments regarding the overlap between PK and PCK have been echoed in the academia for many years (see Graham, 2011 for a more detailed discussion on the topic).

After EFA analysis the resulting 50-item questionnaire was used to explore the discriminant power of the EFL-TPACK. As such, participants' scores were compared across a

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[16] In this stage of the piloting, an advert inviting EFL teachers to participate in the questionnaire was shared in a number of social media platforms such as Facebook, LinkedIn and Twitter. Since the number of EFL teachers who were able to access and read the invitation was not known to the researcher, the response rate for participation to this stage of the piloting is not known.
[17] Construct validity refers to the ability of a measurement tool to actually measure the psychological concept being studied (Cohen et al., 2007)

number of different characteristics they had. It was found that the EFL-TPACK questionnaire was sensitive enough to be able to differentiate between: 1) native and non-native speakers (in relation to the CK section); 2) experienced and less experienced teachers (in relation to PCK section); and 3) teachers who use technology frequently and less frequently (in relation to TK, TCK, TPK, and TPACK sections). In addition, Cronbach's alpha test was used to calculate the internal reliability of the survey items instruments; the overall reliability of the survey was .94, which is considered to be "excellent" (George & Mallery, 2003). It is considered that following the steps mentioned above resulted in the creation of a valid and reliable instrument for data collection (detailed information regarding the development of the EFL-TPACK questionnaire can be found in Appendix 1).

To summarize, the questionnaire method has been utilized in this study in order to reach as many participants of the WiA community as possible. In addition, the EFL-TPACK (a valid and reliable research instrument) survey has been developed in order to measure WiA members' perceived TPACK levels. However, whilst allowing collection of data from a large number of respondents within a short time frame, it is argued that the questionnaire method only allows a limited amount of information to be gathered, which can result in difficulties understanding the context and the meaning behind the survey responses given (Bryman, 2012). Additionally, since having too many questions would put off respondents from completing the questionnaire (Dillman et al., 2014), it is considered that the questionnaire method would not be suitable in the search for an answer regarding the factors that affect members' participation in the WiA community. The interview method, which is explained further in the next section, was therefore deemed to be more appropriate for gathering information relating to this research question.

3.4.2. Interviews

The interviews, which were conducted online, carry more weight than the questionnaire and document analysis used in this study, since the main aim of the study was to gain insights into interviewees' experiences on the Internet (Salmons, 2010b), more specifically their online experiences of participation within the WiA community. Kvale (1996) defined interviews as "an interchange of views between two or more individuals on a topic of mutual interest" (p.11). Through the use of interviews, researchers attempt to make sense of the world from subjects' point of view, to understand and display the meaning of subjects' experiences before providing a scientific explanation (Kvale & Brinkmann, 2009). As such, the data generated through the interviews are neither subjective nor objective but rather inter-subjective (Cohen et al., 2007). In this sense, for a researcher conducting a study within the frame of

sociocultural learning theory and investigating participants' experiences within an online environment, interviews provided a useful medium for collecting data. There are various reasons for the choice to utilize the interview method: 1) interviews allow researchers to address complex and deep issues and provide insights and context into those issues by capturing verbal and/or non-verbal information; 2) researchers can probe answers for more complete and better explanations, which in turn increases the accuracy of the data; and 3) rapport can be built with the interviewees, which may allow them to relax and speak frankly about their opinions and experiences (Cohen et al., 2007; Kvale & Brinkmann, 2009). In addition to understanding the factors affecting members' participation in the WiA, one of the interview questions was aimed at further clarifying and exemplifying the technology professional development of WiA members, thus such data complimented and triangulated the questionnaire findings (see Outcome section of the interview schedule in Table 3.4).

3.4.2.1. *Design considerations for developing and conducting the interview schedule*

A semi-structured interview format was deemed appropriate for this study as these types of interviews allow some basic structure to the questions, which can make it easier to compare individuals' results, whilst also allowing the flexibility of prompting and probing in order to follow up any specific issues of interest that emerge during the interview (for more details on types of interviews, see Cohen, Marion, & Morrison, 2007; Bryman, 2012). Noor (2008) agrees and states that semi-structured interviews provide "sufficient flexibility to approach different respondents differently while still covering the same areas of data collection" (p.1604).

One of the limitations of the interview method is the fact that participants might tell the researcher what they want to hear or what they think the appropriate answer should be, rather than a truly honest response. Merriam (1998) claimed that with interview responses "there is the possibility that information has been distorted or exaggerated" (p.84). Moreover, Arksey and Knight (1999) warned that "since what people claim to think, feel or do does not necessarily align well with their actions, it is important to be clear that interviews get at what people say, however sincerely, rather than what they do" (p.15). In order to address this limitation, the researcher can strive to make the interviewee feel at ease, ensure confidentiality and anonymity, and pay close attention to the wording of questions, all of which can increase the quality of the data (Diefenbach, 2009). In the present study, therefore, a decision was taken to contact participants prior to the interviews in order build rapport and trust so that they would feel at ease during the interviews. Additionally, the questions asked were, in general, about the WiA community and not the participants' behaviour (see Table 3.2). When the questions were about participants' behaviour (e.g. "How would you describe

your current practices in using technology in your teaching?") the researcher probed and asked interviewees to provide examples of behaviours under investigation. Through undertaking those actions, it was hoped that what interviewees reported would be representative of their actions and behaviours.

Since the interviews were conducted online, it was imperative that suitable tools were which would enable the interviews to be conducted online and recorded. Moreover, it was important that I, the researcher, felt comfortable with the technology that was going to be used in the interviews, in order to project myself as being calm and confident, and inspire trust so that the interviewees would feel more comfortable and willing to contribute to the discussion (Salmons, 2010a). The *Call Recorder for Skype*[18] software was downloaded and Skype was utilized for online synchronous interviews. I felt at ease with and comfortable using Skype since I was already familiar with its use. Additionally, I became competent in using the recorder add-on to Skype during the piloting stage. The pilot interviews also provided the opportunity for me to practice my interviewing skills. Last but not least, Salmons (2010a) also suggests that it is important for the interviewee to be comfortable with the software being used to conduct the interview. Since they were members of an online community that specified its interest in the use of technology for education, it was thought that the members would have the necessary digital literacy to participate in a Skype call.

3.4.2.2. Content of the interview schedule and piloting

As previously mentioned in Section 3.3.2, Activity Theory (AT) was used as a guide to create the interview schedule for the present study, which is rooted within Socio-Cultural theory. Mwanza's (2001) eight step activity system analysis and Engeström's (2001) expansive learning model were used in the preparation of the initial interview schedule. As stated earlier in this chapter, the subjects are the people undertaking the activity, who in this study were the members of the WiA community. The activity under investigation was members' participation in the WiA community and each subject participated for a reason, i.e. their objective. In addition to Mwanza's (2001) eight steps, which aimed to identify an activity system, the interview schedule was also aimed at developing an understanding of how the different elements of the activity system affected subjects in their undertaking of the activity, (i.e. the smaller activity triangles in Figure 3.4.) In order to do so, specific questions were written in

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[18] Call Recorder for Skype is commercial software that requires the user to make a one off payment for the unlimited use. It is an add-on software that can be installed to Skype. http://www.ecamm.com/mac/callrecorder/
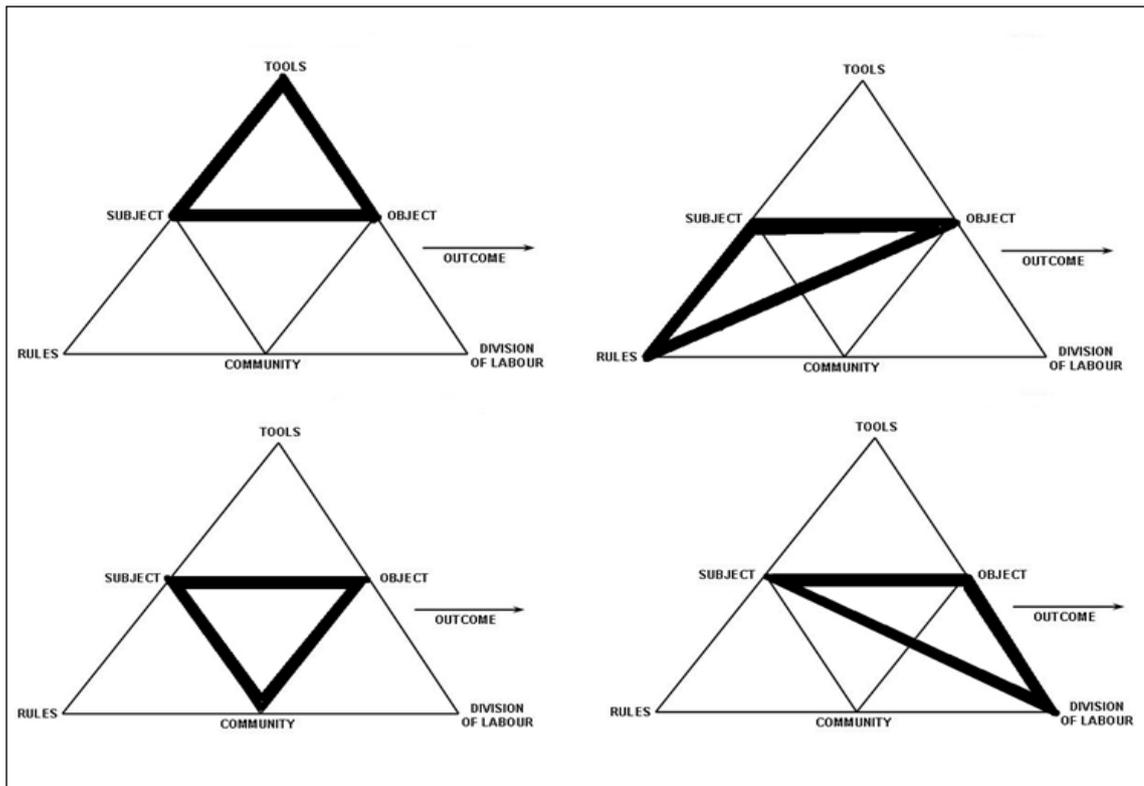
Figure 3. 4. Subject and Object Focused Activity System Analysis

relation to how tools, rules, community, and division of labour affected members'
participation in the WiA community (see Table 3.2). Furthermore, different elements of
Engeström's (2001) expansive learning model (i.e. historicity) were incorporated into the initial
interview schedule.

With regards to the subject component of AT, questions were prepared that aimed to
gather information about interviewees and their professional backgrounds. Questions in the
objective section sought answers for understanding the process and motivation of participants
in joining the WiA community. Questions in relation to the tools component of AT aimed to
gather information on which digital platforms the members utilized for participation.
Questions in the rules section sought answers that would unfold the norms that guided
participation in the community. The community section questions were directed at
understanding who the members interacted with inside the community and questions in the
division of labour section, as the title suggests, aimed at gathering data about how the labour
was divided within the community. Lastly, questions in the outcome section were asked to
understand what the members gained through their participation in the community. The initial
interview schedule used in the present study is provided in Appendix 2.

The piloting of the interview schedule took place in December 2013. I registered myself as a member of the WiA Yahoo! group and sent private messages to other community members inviting their participation for an interview. I received three positive responses from three members with different levels of participation; one posted regularly, another posted frequently, and the last had never posted any messages in the community's public spaces. As can be seen above and in Appendix 2, the initial interview schedule was the product of a rigorous investigation into activity theory which resulted in an interview schedule that was too detailed. It was possible that this resulted in some leading questions being asked to the participants. In order to avoid this issue during the main study, the interview schedule was revised to include more general questions and paid more attention to asking prompting and probing questions where possible. For example, in the pilot interview schedule there was a question that asked participants if they knew about other community members' professional backgrounds. This question was considered to be too specific and in fact the questionnaire's demographic information section provided me with such details about the participants in the main study, thus that question was taken out of the interview schedule. The revised interview schedule can be found in Table 3.2.

There were a number of themes such as leadership, support, and Webheads in Action (WiA) community and its link to the Electronic Village Online (EVO) that emerged from the data gathered during the piloting of the interview schedule. It was decided to prompt and probe those themes if members mentioned them during the main study interviews.

In addition to these, the piloting stage provided me with the experience of utilizing the interviewing method to elicit information. As such, the practice that I gained while piloting the interview schedule increased my comfort level with the online tools (Skype and Skype recorder) and consequently boosted my confidence, which Salmons (2010b) suggested is important for conducting online interviews. Last but not least, I also practiced and became familiar with the use of the NVIVO software for qualitative analysis by analysing the interview data.

In summary, since it allows researchers to address complex issues and provide insights, and allow for probing answers for a more complete and better explanations the interview method has been utilized in this study to find out what factors affected members' participation in the WiA community and its perceived effect on members' teaching practice. An Activity Theory (AT) oriented interview schedule was prepared, piloted, and revised for use in the main study. However, while enabling the researcher to address complex issues, such as factors affecting participation in an online community, the interview method relies on

participants' providing truthful and comprehensive answers (Cohen et al., 2007). Likewise, Silverman(2005) claims that the data from interviews can be seen as artificial since the researchers have to create a situation, which would not occur naturally. In order to address

Table 3. 2. Activity Theory guided semi-structured interview questions

Section	Question
Subject	Could you please provide information on your professional background as a teacher?
Object	How and why did you join the community?
	What motivates you to follow the community?
Tool	How do you interact with the community?
	How does the availability of the (Platform name) affect your participation?
Rules	During your engagement within the community, have you become aware of any rules/ norms governing the Webheads Community?
	How does the availability of these rules/ norms affect your participation?
Community	Who are the members that you know?
	How does other members' behaviour within the community affect your participation?
Division of Labour	Do you have any responsibilities that are divided between you and other members?
	How does this affect your participation?
Outcome	How would you describe your current practices in using technology in your teaching?
	How did you acquire these skills?

that limitation, the messages shared within the public domain of the community were collected and where possible were used in order to triangulate and/ or elaborate on the findings of the questionnaire and interview. More details of the document analysis method utilized in this study are provided in the following section.

3.4.3. Document Analysis

The term 'document' generally represents written documents (i.e. book, newspaper, and/or magazine; Robson, 2002). In the present study, the messages posted in the public space of the WiA community were considered as documents and document analysis was carried out, in addition to the data collection methods outlined above.

Bryman (1989) stated that, while it has been widely used as a research method by qualitative researchers, document analysis is frequently used as a supplementary method to

control the findings from other data resources. In this sense, analysing documents "can provide information on issues that cannot readily be addressed through other methods; they can check the validity of information deriving from other methods; and they can contribute a different level of analysis from other methods" (Bryman, 1989, p.150). Documents, unlike interviews and observations, exist prior to their collection as data for research purposes (Miller & Alvarado, 2005). Given that what WiA members have reported in the interviews or self-report questionnaires may be different from what they normally do, document analysis was used for cross validating the findings in this study (Noor, 2008).

It is important to note that documents are generally written for specific purposes. The researcher, therefore, might have to interpret their meaning without having full understanding of the contexts in which they are produced. In turn this may result in misinterpretation of the data. Likewise, Hodder (1994) highlighted that "once transformed into a written text, the gap between the 'author' and the 'reader' widens, and the possibility of multiple misinterpretation increases" and "the text can say many different things in different contexts" (p.394). Since the researcher is distanced from the subjects who wrote the document, the subjects' "action and thought are interpreted through representations of reality" (Miller & Alvarado, 2005, p. 348). In order to address the limitations stated above, the documents collected in this study were only used as a supplementary data collection method for supporting, verifying and/ or challenging the findings from the interviews and questionnaires. For example, in relation to the first research question investigating whether the WiA community can be considered as an online community of practice, the Yahoo! group message history of the WiA community was identified as the artefacts that were developed as part of community's practice and those messages were used to support the findings that were related to the information elicited via the questionnaires and interviews.

3.4.3.1. *Piloting the document analysis approach*

The messages posted between October and December 2013 (3 months) were collated and analysed in the document analysis piloting stage. Three social media platforms were identified as public spaces in which WiA members could post messages and interact; the WiA Facebook, Google +, and Yahoo! groups. An examination of these platforms revealed that there was little, if any, interaction taking place within the Google+ and Facebook WiA groups. The messages that were occasionally posted in these two spaces were found to be event updates which informed the members of online gatherings that the community held and which generally overlapped with messages that had already been shared on the Yahoo! group. The Yahoo! group, in contrast to the other two, was found to be more vibrant; there were relatively more

interactions and discussions taking place within this platform. Therefore, a decision was made to collect and analyse the messages posted in the WiA Yahoo! group, but not the Google + or Facebook. Since the Yahoo! group allowed collection of posts as threads, the messages were collated in this way rather than one by one.

Document analysis can be considered to include both quantitative and qualitative aspects. Initially, the message threads were analysed according to their content and were categorized and subcategorized (e.g. category: sharing resources; sub category: sharing articles, sharing event recordings), which can be seen as the qualitative aspect. After grouping the threads, the number and percentage of threads in each category were calculated, which can be seen as the quantitative aspect. Additionally, a number of messages were used to support the findings from the interviews (see Chapter 4).

It is important to note that it was difficult to clearly define pilot study interviewees' level of participation in the community with terms such as 'frequently' and 'regularly' (see Section 3.4.2.2). At this stage, Wenger et al.'s (2002, p. 57) degree of community participation diagram was used and a decision was made to group members as "core", "active" or "peripheral" members. While specifying these levels of participation, Wenger et al. (2002) did not provide clear cut definitions for how to classify those levels of participation. They noted that it is possible for the community members' participation to be dynamic and continuously changing. For example, a member might become active for a month or so and then suddenly drop out of conversations. Nevertheless, in an attempt to generate a method for categorizing member participation for the present study, and taking into account Wenger et al.'s (2002) arguments, a formula was created which is explained below.

In total, in the main study, nine months of community interactions were to be collated for document analysis and I decided to divide this nine-month period into 3 three-month timeslots in order to address the fluctuation in members' level of participation. These timeslots would be; 1) October- December 2013[19], 2) January- March 2014, and 3) April- June 2014. The average number of messages sent per person in each time period would then be calculated and the following criteria would be applied;

- If an individual posts more than the average per person in two or more of the time points, then that individual will be considered as a "core" member.

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[19] Since the messages shared among members were not the product of the present study and existed independently from this study, their inclusion in the main, as well as the pilot, study was deemed appropriate.

- If an individual posts at least once and less than the average per person in two or more of the time points, then that individual will be considered as an "active" member.

- If an individual does not post at all in two or more of the time points, then that individual will be considered as a "peripheral" member.

In summary, the document analysis approach in this study was utilized as a supplement to support the findings from the interview and questionnaire data, in response to the limitations outlined above. Additionally, the collection of the community interactions enabled me to develop a formula for identifying the WiA members' level of participation. I believe that through the utilisation of the questionnaires, interviews, and the document analysis methods I was, to a certain extent, able to counterbalance the weaknesses of each method, which would be present if they were to be used in isolation. This helped me to achieve complementarity as well as triangulation of my findings (see also Section 3.7). The data collection steps followed in the main study are reported in the next section.

3.5. Procedures

As can be understood from the discussion of the research methods so far, the data collection for the main study consisted of: 1) collecting posts shared within the WiA community's Yahoo! group page; 2) administering the EFL-TPACK questionnaire; and 3) conducting online interviews. In this section, the procedures followed in data collection are explained (the procedures are summarised in Table 3.3.

The data collection for the main study started with the collection of messages posted in the community's Yahoo! group page in October 2013. As explained in the previous section (Section 3.4.3), the messages posted between October and December 2013 had already been analysed during the pilot of the document analysis method. In spite of this, a decision was made to include those messages in the analysis of the main study since those messages existed prior to the start of the present study and were not products resulting from this study. Messages posted for 9 months between October 2013 and June 2014 were collected as documents to be analysed and were divided into 3 three-month time periods in order to define members' level of participation (see also Section 3.4.3.1). The number of unique members who posted at least one message in each of the three-month time periods is shown in Table 3.4.

Table 3. 3. Summary of data collection procedures

Procedure	Product
Collating data from the public domain of the OCoP for nine consecutive months (collated at the end of December 2013, March, 2014, and June 2014).	Collection of 566 messages posted within nine months
Administration of the EFL-TPACK Questionnaire (end of May, beginning of June 2014, for 4 weeks)	69 responses to the questionnaire
Sending private messages to those who provided their details for the interview stage	26 respondents who volunteered to participate in the interviews
Arranging a convenient time and conducting the online interviews	Digital records of 24 interviews with 11 peripheral, 9 active, and 4 core members that were later transformed into text data

Table 3. 4. Messages collected from the WiA Community Yahoo Group Page between December 2013 and June 2014

Data collection Period	Month	Number of messages posted	Number of members who posted a message	Average number of messages per person
October–December 2013	October	58		
	November	79	59	3.7 (4)
	December	80		
	Total	*217*		
January–March 2014	January	39		
	February	38	40	3.6 (4)
	March	67		
	Total	*144*		
April–June 2014	April	84		
	May	41	50	4.1 (4)
	June	80		
	Total	*205*		
Total number of messages		566		

Initially my intention was to invite WiA members to participate in the main study at the end of June 2014 (the last month of Yahoo! group message collection) in order not to create a researcher effect and change the community dynamics. However, June and July are generally the end of the academic year and the beginning of holiday season in many countries in the Northern Hemisphere or the end of the term and beginning of semester holiday in the Southern Hemisphere. Assuming that teacher members of the WiA community would be busy with end of term procedures or on holiday around this time, I decided to start the administration of the questionnaire earlier during May 2014 (in the 8th month of the collation of the WiA Yahoo! group messages). An invitation post (see Appendix 3) informing members about the present study and encouraging them to participate was sent to WiA community's public spaces (Facebook, Google +, and Yahoo! groups). At the end of the post, members were provided with a URL link to the participant information page of the questionnaire.

At the end of the first week of the questionnaire administration, very few responses had been collected from WiA members. Since it was the first time I had posted in the community's public space, it was possible that WiA members did not know or did not trust me. At this stage the moderator of the list responded to the original invitation message that I had sent and encouraged members to participate by: 1) establishing my credentials, not only as a researcher, but also as a member of the community; and 2) explaining the potential benefits of the this study to the community (i.e. an online session where I would share my findings with the community). At the end of one month, 69 responses were collected from the members of the community. Those participants were asked to provide their name and their email address in order to confirm their identity and cross check how often they posted messages in the WiA Yahoo! group so that their level of participation could be categorized. After this, the questionnaire data was anonymized, transformed into numbers and imported into the SPSS software for analysis.

Following this, the participants who volunteered for the interviewing stage were contacted individually and were asked about their availability, as well as their local time zone, since they were from different geographical parts of the world. Another reason for emailing volunteers individually was the expectation that I could build rapport and trust through having direct contact with each individual. All interviewees were comfortable with using Skype and agreed to conduct the interviews through the use of this software. During the interviews, in an

effort to increase interviewees' trust, I opened my webcam where possible[20] but I also reminded the interviewees that they did not have to open their webcams unless they wished to do so. According to Wenger et al. (2002, p.56), core members constitute 10 to 15 %, active members 15 to 20 %, and lurkers 65 to 75 % of the members in a community. There were 24 members who participated in the interviews and all the levels of participation that Wenger (2002) identified were represented in this study. The analysis of the number of messages they posted within the community over nine months suggested that four of the participants could be considered as core members, nine as active members and 11 as peripheral members (see Table 3.5). This provided contrasting and extreme cases which increased the credibility of this study and was considered to provide fruitful information for analysis (Miles, Huberman, & Saldaña, 2014; Yin, 2014).

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[20] There were instances where the internet connection was not reliable. In those cases the webcam was turned off. There was one instance where the internet connection dropped and the researcher had to finish the interview by calling a phone number that the interviewee provided through the use of Skype.

Table 3. 5. Interviewees and their membership status

Name	October-December 2013	January-March 2014	April-June 2014	Average	Membership Status		
	Posted	Posted	Posted		Peripheral	Active	Core
Amal[21]	3	0	0		✓		
Havva	0	0	0		✓		
Julio	0	0	0		✓		
Marilyn	0	0	0		✓		
Mona	0	0	0		✓		
Patrick	0	0	0		✓		
Rebecca	0	0	1		✓		
Sally	0	0	0		✓		
Stefania	0	0	0	The average number of messages posted per person in each of the three-month period was 4	✓		
Trella	0	0	0		✓		
Vanesa	0	0	0		✓		
Betty	3	1	4			✓	
Delma	1	0	2			✓	
Emma	9	0	4			✓	
Hailey	1	2	1			✓	
Mandy	1	0	4			✓	
Mary	2	6	3			✓	
Raine	1	0	5			✓	
Sarah	1	2	4			✓	
Vania	2	0	3			✓	
Cecilia	10	6	9				✓
Mike	5	0	9				✓
Telma	9	9	14				✓
Vance	58	30	37				✓

*Please note that pseudo names were used in order to maintain confidentiality. The only exception to this is Vance who is the moderator of the community (further details of this issue can be found in Section 3.7.2 Maintaining confidentiality).

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[21] During the interviews, Amal acknowledged that she had previously participated in Kulavuz-Onal's (2013) doctoral study. Thus, the same pseudo-name was used for this participant.

The sequence of conducting interviews suggested by Robson (2002) was followed during the interviews (see Table 3.6). Initially, the interviewees were thanked for volunteering to take part in the study and they were briefed about the study and what was expected from them (i.e. describing their experiences within the WiA community). Participants were reminded of their rights as an interviewee, were asked if they had any questions, and their consent was sought prior to the interview questions. The interviews conducted with the 24 interviewees generated 1328 minutes of recorded data. The interview lengths ranged between 31 minutes and 119 minutes and the average length of an interview was 55 minutes. Most of the interviews followed a similar sequence in conjunction with the activity theory framework components in the following order; *Subject, Object, Tools, Rules, Community, Division of Labour, and Outcome.* In an attempt to empower the interviewees, during the interviews, the researcher reminded them that they did not need to answer all of the questions and that there were no right or wrong answers to the questions being asked (see Appendix 4). Following the recording of the interviews, each interview was verbatim transcribed and each participant was provided with a copy of the interview transcript so that they could check the accuracy of the transcription and provide feedback in case any problems arose (i.e. misunderstood words). The transcripts were then imported to NVivo software for analysis along with the nine-month message history that was collated from the WiA Yahoo group.

Table 3. 6. Stages of the interview process as suggested by Robson (2002) and linked to the present study

Framework for interview	Approach used in the present study
Introductions	Briefing interviewees about the study and what is expected from them
Warm up	Discussion of interviewee's professional background
Main body of the interview	Activity Theory guided interview questions relating to each node of the framework
Cool off	A two to four week period until the interviewee received the transcript of the interview for accuracy check
Closure	The interview transcript was finalized and input to NVivo software for analysis

3.6.   Data Analysis

As a consequence of using a mixed methods approach, more than one analysis technique was used in the present study. This section provides information on the different analysis techniques utilized in the study.

3.6.1.   Analysing questionnaires

It is worthwhile to remember that the questionnaire data included demographic information about the participants as well as their perceived technological pedagogical and content knowledge (TPACK) levels. Descriptive statistics were utilized for presenting demographic information collected from questionnaire respondents (i.e. percentages of male and female participants).

With regards to the TPACK scores, inferential statistics were used in order to compare whether a significant difference existed among different levels of participation. This analysis was carried out in order to measure the effects of different levels of community participation on members' perceived skills of technology integration. Members' level of participation were categorized into three groups (peripheral, active, and core); there were 3 EFL teachers who were considered to be core members, 14 active, and 29 peripheral[22].

In order to decide which type of analysis (parametriv vs non-parametric) would be more suitable to analyse the data the data set was checked to find out whether it was normally distributed or not. The assumption of normality assumes that all of the data points (individual scores of each participant) for a given test (the TPACK questionnaire in this case) are distributed evenly around the centre of all scores (all of the responses collected from individuals). When such data is presented graphically, it would resemble a "bell-shaped" curve (Field, 2009). Both Kolmogorov-Smirnov and Shapiro-Wilk tests were run to test the normality of the data and both test results were significant which suggested that the data set was not normally distributed (Field, 2009). That result suggested that the use of non-parametric tests was more appropriate to analyse the data set (Field, 2009).

In order to compare the three levels of participation mentioned above, "K" independent samples non-parametric tests (Kruskal-Wallis and Jonckheere-Terpstra) were applied and a significant difference was found to exist between different levels of

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[22] The reader is reminded that while 69 responses were received to the questionnaire, not all participants were EFL teachers and figures provided above reflect the number of EFL teacher participants.

participation. However, since the difference between the participant numbers across the three groups was high, the reliability of the analysis was threatened. Therefore, as active and core members were considered to have more similar levels of participation, the responses of active and core members were grouped together (n = 17) and compared to that of the peripheral members (n = 29) by applying "2" impendent samples non-parametric tests (Mann Whitney U). The results of Mann Whitney U test were found to support the results yielded from the Kruskall-Wallis test. However, only the results of Kruskall-Wallis test are reported (see Section 4.3.3). The results of Mann Whitney U test are available if required, but beyond the scope of this thesis.

3.6.2. Analysing interviews

Miles, Huberman, and Saldana (2014) summarized that qualitative data analysis is a cyclical process, consisting of three concurrent activities which are: data condensation; data display; and conclusion drawing and verification. Data condensation is defined as 'the process of selecting, focussing, simplifying, abstracting and/or transforming the data that appear in full corpus (body) of written-up field notes, interview transcripts, documents, and other empirical materials" (Miles, Huberman, & Saldana, 2014, p.12). In the present study data condensation first started by organizing the data according to the activity theory framework and then applying thematic analysis to identify emergent themes/patterns within the data set (more details on the application of Thematic Analysis will be provided in the next sub-section). Data display is "an organized, compressed assembly of information that allows conclusion drawing and action" (Miles, Huberman, & Saldana, 2014, p.12). Data displays are useful and make it easier for the readers to understand the data, analyse it further, or take action if necessary (Miles, Huberman, & Saldana, 2014). In the present study, diagrams, matrices and thematic grids were used to establish links between the data extracts and themes that were identified (see Chapter 4).

There seems to be a consensus among researchers that while conclusions are drawn from the data at the end of the analysis process, the researcher is in fact actively involved in this process from the very beginning of data collection as he or she notes patterns, irregularities etc. and continually reviews and critically reflects on the interpretation of the data (Robson, 2002; Yin, 2014; Miles, Huberman, & Saldana, 2014). An important issue, which the researcher should be cautious about in the analysis process, is keeping the initial conclusions flexible and having an open and sceptical approach to the data throughout the analysis; an approach that I endeavoured to adopt in this study (Miles, Huberman, & Saldana, 2014).

In qualitative research, there are a variety of ways for the researcher to gather and analyse data. The discussion of each of the methods (e.g. Grounded Theory), other than the one (Thematic Analysis) adopted within the present study, is outside the scope of this thesis. For analysing the interviews, I decided to apply Thematic Analysis, which is claimed to be "a foundational method for qualitative data analysis" (Braun & Clarke, 2006, p. 78). The reasons for why I decided to adopt Thematic Analysis in this study can be summarized as follows;

- usefulness for researchers undertaking a study with participants as collaborators (suiting the social constructivist theory),
- ability to condense large data sets and offer a 'thick description',
- ability to show differences and similarities,
- possibility for generating unexpected insights
- flexibility,
- relative easiness of learning and conducting it, and
- accessibility to researchers with little or no experience in qualitative data analysis (Adapted from Braun & Clarke, 2006).

Thematic analysis (TA) is "a method for identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p.79). It is "an accessible and theoretically flexible approach to analysing qualitative data" (Braun & Clarke, p. 77). This suggests that TA is not bound by theory and/or epistemological positioning, which suits the pragmatic approach adopted in the present study. Since it is not bound to any theory, the use of TA is compatible and does not conflict or contradict with the TPACK, Communities of Practice, and Activity Theory frameworks adopted in the present study. The use of TA enables the researcher to create rich and detailed accounts of the themes identified in large data sets. However, it is noted that the collection of a large amount of data also creates the possibility for multiple interpretations (Cohen, Morrison, & Marion, 2007). Moreover, the frameworks that are utilized within a research study carry assumptions about the nature of the data it represents. Therefore, it is important that the researcher demonstrates reflexivity and transparency (Braun & Clarke, 2006; more details on reflexivity are provided in Section 3.7.5).

In TA, the researcher plays an active role in which he or she identifies, selects and reports themes by analysing the data and creating links between their thinking and the data (Braun & Clarke, 2006). While the researcher's duty is to identify themes, it is important to define what counts as a theme. Braun and Clarke (2006) noted that what counts as a theme can vary and that "there is no hard-and-fast answer to the question of what proportion of your data set needs to display evidence of the theme" (p. 82). On the other hand, it could be

considered that a theme should capture something important in the data which relates to the research question/s in a patterned and consistent manner. Braun and Clarke (2006) also added that a higher number of occurrences of a theme within the data set does not necessarily mean that it is more crucial. Last but not least, Braun and Clarke (2006) warned that the researcher should avoid the use of data collection questions as themes and be involved and undertake an analytic approach in defining the themes. All of these considerations have been taken into account when analysing the interview data in this study.

On a different note, TA can be used inductively (data-driven) or deductively (theory-driven). A deductive approach involves the use of a predetermined theoretical framework to support the data analysis, which is the case in the present study. In this study, Activity Theory components (i.e. subject, tools, and rules) were used as priori codes for organizing and categorizing the data, thus leading to a deductive approach (Bazeley & Jackson, 2013). A deductive approach can result in increased specificity and detail. However, it can be argued that deductive approaches can offer a biased analysis, which detracts the researcher from the overall richness of the data; this issue has been explicitly acknowledged in Section 3.7.5.

After the initial organization of the data according to Activity Theory, an inductive approach was followed in order to identify 'latent' themes. Latent analysis has been described as analysing beyond the specific or surface meanings of the data and examining the "underlying ideas, assumptions and conceptualizations – and ideologies – that are theorized as shaping or informing the semantic content of the data" (Braun & Clarke, 2006, p. 84). Braun and Clarke (2006) developed a step by step guide for conducting TA in an effort to respond to the critique that TA lacks clear and concise guidelines. Table 3. 7 presents an overview of the steps suggested for conducting TA by Braun & Clarke (2006) and how those steps are linked and followed in the present study.

Table 3. 7. Steps of Thematic Analysis in the present study as suggested by Braun and Clarke (2006, p. 87)

Step	Description of the process	How the process was applied in the present study
1. Familiarization with data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.	Following the interview, each interview was transcribed verbatim (Poland, 1995). Ideas were noted down as the transcription went on. After transcription, I read the interview transcript for spell check purposes and kept taking notes when needed.
2.Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.	Transcript of each interview was imported to the Webheads in Action case study project database in NVivo software. Activity Theory priori codes were applied and the data was categorized. Each interview transcript was examined and the interview data was coded using coding techniques such as initial (open) and in vivo (inductive) coding (Saldaña, 2013). Following a constant comparison method, the interview data set was regularly checked for consistency of initial codes and new codes that might emerge.
3.Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.	The codes were examined and potential groupings of codes were considered. Initial themes were grouped under Activity Theory nodes.
4.Reviewing the themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.	The themes were cross-checked with the data set (including the questionnaire responses and the nine-month Yahoo! group message history) and amended as necessary and finalized (see Chapter 4). Bazeley and Jackson (2013) warned that the use of priori codes might confine researchers' thinking. Therefore, at this stage the Activity Theory nodes were treated as synthesizing concepts rather than fixed categories (Patton, 2002). The relationships between the themes were explored further and a thematic map of findings was created (see Figure 5.1 in Chapter 5).

Step	Description of the process	How the process was applied in the present study
5.Defining and naming the themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.	As part of the member checking process, the results of this study has been communicated back to the community in the synchronous online gatherings that the community hold which were called "Learning2gether" and a discussion was led where members were asked to comment on the findings (interpretations of the researcher). Based on this, the data set was analysed again and cross referenced with the whole data set. Definitions for each theme were refined and amended accordingly.
6.Reporting findings	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.	Quotes that were considered to illuminate the key findings were chosen and inserted into the thesis body. The findings were related to the relevant literature and discussed and conclusions were drawn.

3.6.3. Analysing the messages collected from the Yahoo! Group

As previously described, the nine-month message history was used to support, challenge and/ or elaborate on the findings of the interviews and questionnaires. Initially, the questionnaire and interview participants' level of activity in the community was identified by calculating the number of messages each participant had sent to the community within the nine-month period. After this, a topic analysis of each message thread was conducted and each thread was categorized and subcategorized (i.e. category: invitation; sub-category: invitation to submit a proposal). This was followed with calculating the number of message threads in each category and the percentages.

3.7. Trustworthiness

Since qualitative data carries more weight than quantitative data in the present study, it was deemed appropriate to refer to the "trustworthiness" of the data, which is the equivalent of reliability and validity in quantitative research (Denzin & Lincoln, 2005). The trustworthiness of the present study will be analysed with regards to the four criteria defined by Lincoln and Guba (1985); credibility, dependability, transferability and confirmability. In addition to this, for the purposes of reflexivity and transparency, a section discussing my role as the researcher in this study has been added.

3.7.1. Credibility

Credibility is similar to internal validity in quantitative research and refers to the believability of the findings. Mertens (2010, p. 256) suggested that the credibility of a research study could be determined in numerous ways;

- prolonged and persistent engagement,
- peer debriefing,
- member checks,
- progressive subjectivity,
- negative case analysis, and
- triangulation.

Firstly, in order to increase the credibility of the present study by having a prolonged engagement with the case, I joined the WiA community and became a member in September 2013. This, I believe, allowed me to better understand the activities that members were

undertaking within the WiA, as well as record community interactions (along with time stamps showing the exact time when the posts were sent)[23] within the email address that was created for research purposes. Mertens (2010) maintains that peer debriefing and member checking are the most important processes for establishing the credibility of a research study. As such, the findings of this study have been shared with the community in a Learning2gether[24] session where, not only the interviewees, but all members of the community were invited and members were asked for their opinion and feedback. In addition, data was gathered both from members who can be considered as peripheral (with little, if any, participation in community interactions) and core (with regular participation in the community interactions), which can be seen as contrasting cases and enabled the negative case analysis suggested by Mertens (2010). Last but not least, the findings were triangulated by taking into account all of the data (questionnaire, interview, and document analysis) that had been collected and where possible data from all three sources was used for supporting, challenging, and/or revising the findings.

3.7.2. Dependability

Dependability is similar to reliability in quantitative research and refers to the repeatability of the findings (Guba & Lincoln, 1989). Mertens (2010) maintains that, in order to address the dependability of a study, a researcher should provide details of how he/she conducted their study and document any changes in a way that can be tracked. Whilst acknowledging that each research study is unique and that results may differ from one study to another within the constructivist paradigm, the dependability of the present study was addressed by adopting a systematic approach and by detailing each step taken, where possible, in relevant sections starting from the research approach (Section 3.2) to the ethical considerations (Section 3.8).

3.7.3. Transferability

Transferability is similar to external validity in quantitative research and refers to the extent to which the results of the study could be applied to the wider context (Guba & Lincoln, 1989). It has been stated that it is the reader's responsibility to decide whether the results are transferable to other contexts or not, since it is not the intention of qualitative research to generalize the findings beyond the context being studied (Mertens, 2010). It is, however, the writer's responsibility to provide as much information as possible to the readers, to enable them to make a judgement. This could be achieved by providing a "thick description" of the

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[23] The exact time a post was sent was important information to gather, since it allowed the researcher to check how quickly a message (i.e. help requests) directed to the community were responded to.
[24] Learning2gether is the term used to refer to the regular synchronous online sessions that the WiA community hold. More information on Learning2gether events is provided in the Results Chapter.

case (Geertz as cited in Mertens, 2010). In this sense, the concept of transferability is similar to Bassey's (1981) concept of relatability, which has been outlined in the discussion of the case study approach taken in this study (see Section 3.2.3). In addition, it is considered that the contrasting case analysis, which represents all levels of participation (including peripheral, active, and core members) as well as the triangulation of the findings from multiple sources (interviews, questionnaires, and document analysis), allowed the credibility of the findings to be established and enabled a "thick description" of the Webheads in Action community to be drawn. The data from interviews, questionnaires and document analysis were linked and synthesized in the presentation of the findings (see Chapter 4).

3.7.4. Confirmability

Confirmability is similar to objectivity in quantitative research and refers to acknowledging and minimizing the effect of the researcher's judgement on the study (Guba & Lincoln, 1989). Establishing confirmability means that "the data and their interpretation are not figments of the researcher's imagination. Qualitative data can be tracked to their source, and the logic that is used to interpret the data should be made explicit" (Mertens, 2010, p. 260). My first attempt to establish confirmability was when I joined the WiA community and started to collect the Yahoo! group message history for this study. In order to increase my objectivity and also to avoid interfering with the community dynamics, I decided to stay as a peripheral member. It can be argued that this, in return, prevented me from "going native" and allowed me to "suitably" distance myself from the case (Fuller, 2004). Additionally, after conducting the interviews and during the data analysis I kept memos, in order to be able to refer back to them and reflect on my subjectivity (see Appendix 5). Moreover, I shared my findings with my supervisor during supervision meetings, with fellow PhD students in the department's educational research group meetings, and as previously mentioned with members of the WiA community in a Learning2gether session and received constructive feedback with regards to my data analysis. Last but not least, a detailed outline of the analysis (see Section 3.6) and data linked to the findings (i.e. interview quotations) were provided so that the reader can confirm the logic of the interpretations the researcher made and judge their validity.

3.7.5. Considerations of reflexivity

As discussed earlier (see Section 3.6), as a researcher I should be aware of my role, personal identity, and the potential effects of these factors on my findings whilst conducting this study.

To begin with, I was first introduced to the Webheads in Action community during a conference presentation in Glasgow in summer 2013 and after some considerations they were chosen as the case for this study. I subsequently became a member of the community in

September 2013. While I have taken a number of steps, which are explained below, in order to minimise my effect on this study, I do not believe that it is possible to completely remove myself from this research. Such a stance would have also been inconsistent with the sociocultural theory adopted in the present study, since it highlights the importance of interaction and co-construction of meaning. Nevertheless, the role I had within the community was as a peripheral member, who remained out of sight, the reasons for which were explained in previous sections. In order not to be a complete stranger, however, I contacted the moderator of the group from the very first the day I became a member. I explained the rationale of the study to the moderator and he seemed happy for such a research study to be conducted with the WiA community. It can be argued that distancing myself from the community might have prevented me from fully understanding the dynamics of the community. However, in an attempt to balance this, I conducted 24 interviews with members who had different levels of activity. In addition, I tried to prevent any researcher effect impacting the interviews by hiding my assumptions and knowledge about the community (see Appendix 4).

It is important to note, that having stayed as an outsider might have caused problems to arise relating to trust, since many of the members were not aware of my presence within the community. However, I did offer the participants a report on the findings of the study as an incentive, as well as a presentation in the community's Learning2gether synchronous gatherings to gain trust and increase participation in this study. Additionally, in an effort to encourage participation, the moderator of the group commented on the invitation post that I had sent in order to introduce me to the community as well as explain how this study could benefit the WiA community. Moreover, prior to the interviews, I contacted those members, who had volunteered to participate in the interviews, as a means of building rapport and gaining their trust. However, in spite of these efforts, it I necessary to acknowledge, that I may not have been viewed by the participants in the way I envisaged.

In summary, I endeavoured to increase the trustworthiness of this study through various strategies, which were incorporated prior to (planning to collect data from multiples sources for triangulation), during (staying as a peripheral member in order not to affect community dynamics and stay as objective as possible), and after (i.e. checking the findings of the study with members and receiving feedback) the data collection and analysis stages. It is now timely to turn to the ethical considerations.

3.8. Ethical considerations

The ethical considerations become increasingly important in research involving individuals as research subjects. The ethical guidelines suggested by the Association of Internet Researchers (AoIR, 2002, 2012) have been followed in the present study and ethical approval has been granted by the Department of Education Ethics Committee at University of York.

3.8.1. Informed consent

Consent was sought from the participants at all stages of data collection. To start with consent for participation in the questionnaire was placed just after the participant information page; the consent form page (see Appendix 6) was made a 'required' question, which ensured the participants had answered the question before they proceeded any further in the questionnaire. Any participant who responded 'No' would have been directed to the "Thank you!" page (end of the questionnaire) without any data having been collected.

With regards to the interviews, it is worthwhile to remember that one of the aims for utilising the questionnaire method was to create a pool of potential participants for the interview stage of the study. Additionally, during the administration of the questionnaire the participants were asked to provide their community user name as well as their contact details to ensure that they were members of the community and identify their level of participation. At this stage, I felt that it would not be ethical to use the email addresses that I had collected from the participants since that information had been provided for a different purpose. As a result, an additional section was added which informed participants about the interviewing stage and provided them with a chance to opt out if they wished not to be contacted for the next stage of data collection. Only those who did not opt out were contacted for the interviews and were sent an interview invitation (see Appendix 7). Once a positive response for participation was received, I sent another message asking for details of where the interviewee lived (i.e. country and/or city), their availability, and their local time due to the geographical distance. I tried to be flexible in the timings of the interviews but the interviewees also compromised on the timing of the interviews to a certain extent(see Appendix 8), suggesting that interviewees were not pushed but were volunteering and genuinely willing to participate in the study. Prior to asking the interview questions, the interviewees were reminded of the project, what was expected from them, what their rights were as a participant and their consent was sought before starting the recording. Written consent was avoided at this stage in an effort to not make the process cumbersome for the participants; requesting a written consent would have required the participants to print out the consent form, sign it, and send it back to the researcher. During the interviews,

interviewees were also reminded that they could decline to answer any specific questions and that they were within their rights to withdraw from the study should they wish to.

As for the collection of messages posted within the WiA Yahoo! group, the messages were collected without informing the members, since the WiA Yahoo! group is public and any outsider can access and read the posts in the community; a factor which was also acknowledged by the moderator of the community (see Appendix 9). This could be problematic because participants, whose posts are used in the thesis, could possibly be identified. Therefore, before using a post within the dissertation body, the members who posted the message were contacted and their consent was sought for inclusion of the message within the dissertation body (see Appendix 10). Members, whose posts were used, were provided with the option to opt out and were given two weeks to respond to the message in case they wished their post not to be included. The rationale for the "opt out" option was that it was possible that some of the members might have dropped out of the community in the time since the messages were collected and it would have been impossible to receive their consent. Moreover, as previously stated the messages were publicly available.

3.8.2. Maintaining confidentiality

A number of different strategies have been adopted in order to maintain confidentiality in the present study. To begin with, all questionnaire responses were anonymized after identifying each respondent's level of activity within the community. After this, pseudo names were given to interviewees, as well as non-interviewees, who had posted a message within the nine-month period that community interactions were collected. In addition, any information within a message, which could disclose the sender's identity (i.e. name and/or university affiliation), was deleted from the copies of the messages in the NVIVO database created for the present study. Furthermore, although pseudo names were used for the interviewees, there was one exception; Vance, who is the moderator of the community. It would have been very difficult, if not impossible, to keep his identity secret, since he is the only moderator within the WiA community. It should be added that, while I have tried to protect members' identity by providing pseudo names, it is possible that participants who were more actively engaged in community activities and members whose messages have been used in the body of this dissertation might also be identified due to the message history being publicly available on the Internet. Therefore, I tried to minimize the number of examples taken from the message history in an effort to reach a balance; I aimed to triangulate the findings of this study by providing just enough supporting data from the message history. In short, all of the steps

outlined above were taken in order to minimize the risk of harm to the individuals participating in this study.

3.8.3. Data ownership and accessibility

The members who participated in the questionnaire and interview stages of the study were provided with an option in which they could ask for the data collected from them to be destroyed within a given time frame. With regards to the document analysis, only the participants whose posts were used as quotations in the dissertation were informed that the messages they had shared were being collected. As with the questionnaire and interview participants, they were provided with an option to request the withdrawal of their data (messages) within a specified time period. Participants were also informed that there was a possibility that the findings of this study would be presented at academic conferences and/ or published in journals. In addition, a report of the findings, as well as an online synchronous session focusing on findings of the WiA case study, were offered to the members of the community. Last but not least, I intend to share my dissertation with the community in the future.

3.9. Summary

This chapter opened with a discussion of the worldviews that guide a research study such as this one and provided explanations for the adoption of a pragmatist approach, case study design, and mixed methods research strategy in this study. The mixed methods research strategy section discussed why multiple sources of data (interviews, questionnaires, and document analysis) were used in searching for answers to the research questions. In addition, information was provided about how those methods complemented each other and mitigated some of the weaknesses of each method. The theoretical frameworks (Activity Theory and TPACK) that guided the development of the research tools (interviews and questionnaire respectively) were, then, introduced, followed by the sections, which illuminated the process of developing and piloting those research tools resulting in a valid and reliable questionnaire and a flexible interview schedule. Next, the data collection process followed in the main study was detailed, and the three main steps were explained: 1) collecting the messages that were exchanged in the Yahoo! Group; 2) administering the questionnaire; and 3) conducting online interviews. The data, which was gathered from different sources, required different approaches to be adopted for the analysis. Therefore, quantitative as well as qualitative data analysis strategies were discussed in relation to the data gathered from the participants. This was followed by consideration of the concept of trustworthiness, which is the equivalent of validity and reliability, and details of the different steps that were implemented to ensure the

trustworthiness of the study (i.e. staying as a peripheral member to increase objectivity, interviewing members from all levels of participation for increasing internal validity, and so on). Finally, the ethical aspects of conducting research were considered and details were provided of how the ethical requirements set out by the University of York and suggested by the Association of Internet Researchers (AoIR, 2002, 2012) were followed. The following chapter incorporates the data collected from the different research methods utilized in this study and presents the findings.

Chapter 4: Results

4.1. Overview

In the present study, the Webheads in Action (WiA) group constitute the activity system and can be seen as the unit of analysis providing "minimal meaningful context" for an activity (Kuuti, 1996, p. 26). In other words, the WiA group is the context in which the complex activities of information sharing and topic discussion were observed. In this sense, the use of Activity Theory (AT) provided a well-structured framework for the analysis of such complex data in a meaningful way. Therefore, AT has been used to synthesize the findings of this study which have been summarized in Figure 4.1.

The results of the investigation into the WiA group are presented in two main sections within this chapter. The initial section (4.2) and its subsections, describe the activity system of the WiA community drawing on the different elements of AT. The members of the WiA group (*Subjects*), who constitute the *Community*, are introduced and their *Objectives* for joining and participating in the community are explained in Section 4.2.1. After this, the extent to which the *Subjects* interact with the *Community* is explored, covering topics such as interacting in real world face-to-face settings (Section 4.2.2). The different computer mediated communication (CMC) *Tools*, which the participants utilize in their interactions with other members, are then introduced and the reasons for why a particular CMC tool is preferred to another are analysed in Section 4.2.3. After this, the norms (*Rules*) that guide community interactions, as reported by the interviewees, are presented in Section 4.2.4 and this is followed by information about how participants contribute to the community (*Division of Labour*) (Section 4.2.5). At the end of the first main section, the effects of different aspects of the activity system (*Tools, Rules, Division of Labour)* on members' participation are explored (Section 4.2.6; see also Figure 4.1).

The second main section (4.3) focuses on the *Outcomes* of the community interactions. The artefacts, which result from member interactions in the community, are identified (i.e. the message archives stored on the community webpages) and analysed in Sections 4.3.1 and 4.3.2. After this, the perceived effects of participating in the WiA community on members' technology professional development are examined by comparing and contrasting the data for different levels of participation (Section 4.3.3). The chapter then concludes with a summary provided in Section 4.4.

Tools: WiA community utilize a number of different CMC tools for their interactions, which include synchronous CMC (i.e. Blackboard Collaborate) and asynchronous CMC tools (i.e. Yahoo! groups).

Subject: While most members of the community are language teachers suggesting homogeneity, the different countries members come from and the different contexts they teach in makes it a heterogeneous community.

Object: Learning about the educational uses of technology was identified as members' objective in joining and participating in the WiA group.

Outcome

Outcome: Members' interactions resulted in artefacts (i.e. messages stored within public community spaces) and as a result of their participation within the community members perceived to have developed their skills of using/ operating technology and integrating it into their instruction

Rules: Online interactions are guided by implicit norms applied within the community (i.e. provide support, do not spam)

Community: Members' online interactions developed into friendships which have later been extended to real life meetings.

Division of Labour: Participation in community activities was found to be voluntary and members reported to have taken the roles and responsibilities they wished to take and contribute to the community.

Figure 4. 1. Overview of the Results

4.2.   The Webheads in Action (WiA) Activity System

4.2.1.   The Webheads: The Subjects and their Objectives

In this study, the members of the WiA group are the *Subjects*, who undertake the activity of participating[25] in the WiA group in order to reach a goal. During the analysis of the public message history on the WiA Yahoo! group page, it has been observed that the members of the community refer to themselves as "Webheads", therefore using this term as the title of this section seemed appropriate:

> "… Thanks again Webheads!" (Thread 10, Message 3)
>
> "Dear Webheads…" (Thread 203, Message 2)
>
> "… when I became a Webhead…" (Sarah, Active member)

During the online session in which I presented the findings for member checking, Vance (the moderator/ Core member) explained that "being a Webhead is like being a hippy, they don't carry ID cards, but if you are one, you know another one when you meet". This suggests the Webheads have a distinct identity, characteristics, and ways of being and these characteristics will be unfolded in the sections that follow. The quote from Vance also suggests that there may be other individuals who associate themselves with the Webheads community and consider themselves to be Webheads but are not necessarily members who have registered to the WiA community's online groups. Whilst acknowledging this, however, for the purposes of this study the definition of a Webhead has been restricted to those who are registered to one or more of the online WiA groups on Yahoo!, Facebook, and Google + platforms, since it would have been difficult, if not impossible, to be able to track down and reach out to members outside of these platforms.

4.2.1.1.   *Characteristics of the Webheads: Heterogeneity embedded in homogeneity*

The data collected from the 69 Webheads who responded to the questionnaire and 24 who participated in the interviews[26] have been useful for depicting an overall picture of who the Webheads are.

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[25] It should be noted that participation here refers to all levels of participation, because participation in digital domains necessitates an individual to be active in some way, even though their participation is peripheral and passive (Sam, 2012).
[26] The reader is advised to check Appendix 11 where short biographical information for the interview participants is given to provide context and better understanding of the participants in this study.

The Webheads' teaching experience varied. The average teaching experience of those who participated in the questionnaire ($n = 66$[27]) was around 22 years and their experience ranged from 1 year to 55 years, suggesting that there were novice as well as veteran teachers in the community. The total number of female participants ($n = 53$; 77 %) greatly exceeded the number of male participants ($n = 16$; 23 %) as shown in Table 4. 1, which generally mirrors the greater proportion of female teachers in the field of education and language teaching. Additionally, in line with Wenger et al.'s (2002) statements about the proportion of members with different levels of participation in a community, 47 of the participants were identified as peripheral members, 18 as active, and 4[28] as core members. The criteria for this classification was based on the number of messages each individual shared within the WiA Yahoo! group (see Section 3.4.3.1). In addition, while there were a number of characteristics that were identified to be shared by Webheads, supporting the idea that the WiA is a homogeneous community, a certain level of diversity seemed to exist between members, suggesting that the WiA community is both homogeneous and heterogeneous simultaneously (see Figure 4. 2).
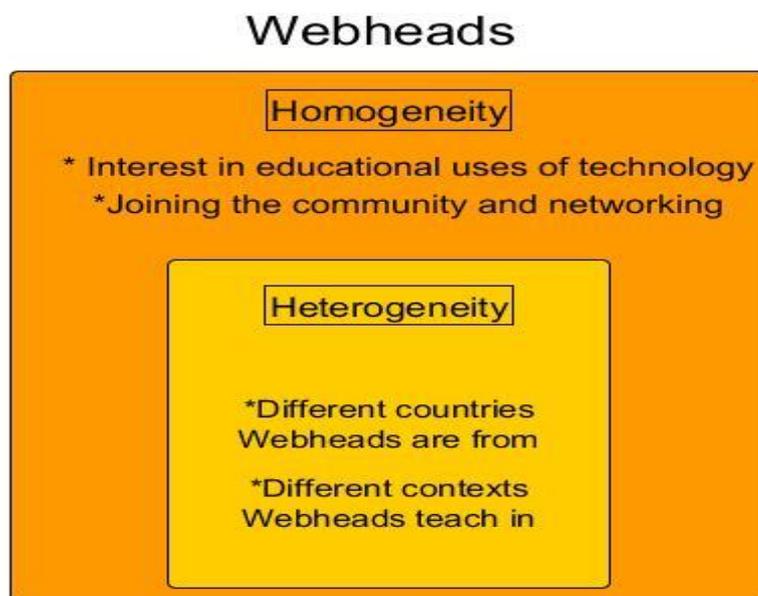
Figure 4. 2. Webheads: Heterogeneity embedded in homogeneity

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[27] There were three participants who did not fill in this section hence $n = 66$ and not 69
[28] In fact, there were 6 core members who participated in this study. However, two of those members had participated in the piloting stage of the interviews, therefore their responses were not included and they were not contacted for another interview.

Table 4. 1. Characteristics of the Webheads

Teaching context	Response ID	Teaching Experience (in years)	EFL vs ESL			Gender		Native vs Non-native Speakers		Membership status		
			EFL	ESL	N/A	M	F	Native	Non- Native	Peripheral	Active	Core
Primary (Elementary School)	1, 17, 18, 48, 53	10, 11, 10, 7, 5	(4) 5.8 %	(1) 1.4 %		(1) 1.4 %	(4) 5.8 %	(2) 2.9 %	(3) 4.4 %	(5) 7.3 %		
Secondary (High School)	4, 8, 9, 15, 20, 26, 32, 38, 44, 45, 46, 55, 62, 65, 66	5, 42, 20, 11, 25, 30, 33, 30, 38, 20, 14, 45, 35, 28, 26	(13) 18.8 %	(1) 1.4 %	(1) 1.4 %	(4) 5.8 %	(11) 15.9 %	(1) 1.4 %	(14) 20.3 %	(8) 1.6 %	(6) 8.7 %	(1) 1.4 %
Higher Education (University/ College)	3, 5, 6, 7, 10, 11, 12, 13, 16, 19, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 34, 35, 36, 37, 39, 40, 41, 43, 47, 49, 50, 51, 52, 54, 56, 57, 59, 60, 61, 63, 64, 67, 68, 69	31, 30, 20, 6, 13, 55, 28, 25, 24, 20, 25, 24, 20, 16, 10, 28, 35, 25, 30, 14, 30, 15, 25, 23, 23, 30, 16, 20, N/A, 12,N/A, 41, 5, 20, 26, 13, 12, 30, 25, 27, 44, 14, 25, 11	(27) 39.1 %	(10) 14.5 %	(7) 10.1 %	(10) 14.5 %	(34) 49.3 %	(17) 24.6 %	(27) 39.1 %	(31) 45.0 %	(11) 16.0 %	(2) 2.9 %
N/ A	2, 14, 33, 42, 58	14, 15, N/A, 1, 17	(2) 2.9 %	(1) 1.4 %	(2) 2.9 %	(1) 1.4 %	(4) 5.8 %	(4) 5.8 %	(1) 1.4 %	(3) 4.4 %	(1) 1.4 %	(1) 1.4 %
	N = 69	*Mean=* 22.38	*N* = 46	*N* = 13	*N* = 10	*N* = 16	*N* = 53	*N* = 24	*N* = 45	*N* = 47	*N* = 18	*N* = 4
Totals	100 %	*Range:* 1 to 55	66.6 %	18.9 %	14.5 %	23 %	77 %	35 %	65 %	68 %	26 %	6 %

Homogeneity

Members' interest in the educational uses of technology was found to be the factor, which brought them together. The majority (*n* = 49; 71%) of Webheads reported that they used technology in most, if not all, of the lessons they taught. Also, in the interviews, they reported that they wanted to learn more about technology and how to apply it in their teaching. Nuance differences, however, have been observed in members' motivation for learning about technology. As can be seen in the quote below, Rebecca (a peripheral member) wanted to learn more about educational technology not only to be able to teach with it but also to teach about it to her graduate students:

> "I was, at the time, teaching in a masters in TESOL programme and was surprised that my students […] could not do even some basic things with the computer. I was just astonished […] They did not know […] very basic things and so I started learning more things myself and then doing more instruction on technology in the classroom" (Rebecca)

Sally (another Peripheral member) and Delma (an Active member), however, aimed to create online courses, which would provide their learners with anytime and anywhere independent learning opportunities and eliminate the physical boundaries of classroom teaching:

> "I just really wanted to learn what to do, to be online, to give students opportunity, to be autonomous, to provide them with materials. […] If my students have everything online they don't have to come to class everyday" (Delma)

On a different note, technology is a commodity that changes quickly. Every day, new technologies are becoming available for people's use. As such, there were a number of peripheral members, such as Havva, Mona, Patrick, Sally, Stefania, and Trella, who stated that they joined and followed the community, since the Webheads continuously updated them about technological changes. As the following quote from Stefania suggests, the community worked like a filter providing members with information about their field of interest, i.e. educational technology:

> "…here you know you get all the important stuff in a way distilled so that you get just you know the essence. It's efficient in a way that it saves time" (Stefania)

The data presented above support the idea that learning about educational uses of technology and receiving updates about technological changes was one of the factors that had brought the Webheads together in this community.

Another aspect that seemed to be shared among the members was their interest in networking with like-minded colleagues. As shown in Table 4. 1 (above), a majority of the Webheads were language teachers and as previously explained they were interested in learning about educational uses of technology. It is possible to argue that networking is a natural process of and motivation for joining a community. However, there were many Webheads who, whilst acknowledging their interest in learning about technology, put more emphasis on creating/ maintaining contacts and/ or fighting isolation as their motivation for joining the community. The following excerpts can be seen as illustrations of these points:

"Uhm one of the comments that somebody made was 'How can we possibly teach today's 21st century students using 19th century tools and have 20th century information?' So what I wanted to do was better my chance at reaching those for whom technology was a normal thing and I thought that the Webheads community was the very best place to start and then to continue" (Sarah, Active member)

"I think as teachers we are sort of isolated […] I mean teachers are like cuckoo clocks. Okay, every ten minutes they have a break and they go out 'cuckoo, cuckoo' and then you go inside the class. […] So I mean the Webheads in Action was a way of developing professionally and having a community that you could rely on…" (Julio, Peripheral member)

One last characteristic, that seemed to be shared among the Webheads, was the path they followed in joining the community. Almost all interviewees participated in an Electronic Village Online (EVO) session prior to joining the WiA community (more information on the EVO session is provided in Section 4.3.2). In 2002, Vance (Moderator/ Core member) moderated an EVO session titled "Webheads in Action" for language teachers. Delma and Raine (Active members) and Mike and Telma (Core members) were some of the first members to participate in that first WiA EVO session. At the end of that session the participants decided to continue their interactions and learn together resulting in the birth of the WiA community. After this, the WiA EVO session ran once more before it was replaced by Telma and Delma's EVO session entitled "Becoming a Webhead" in 2004 (see Figure 4. 3 below for a chronology of events). "The idea of the workshop was to introduce members to the Webheads in Action that is why it was called 'Becoming a Webhead'", Telma explained. As such, many of the interviewees reported that they had participated in the BaW sessions prior to joining the community. It can be seen through Figure 4. 3, presented below, that the BaW EVO sessions continuously brought in members to the WiA community. Only Emma and Hailey (Active members) had not participated in the BaW EVO sessions, but they explained that they participated in different EVO sessions that were delivered by Webheads and, thus, were introduced to the community.

The only member who did not participate in an EVO event, but rather was encouraged by her PhD supervisor to join the community, was Mona (Peripheral member).
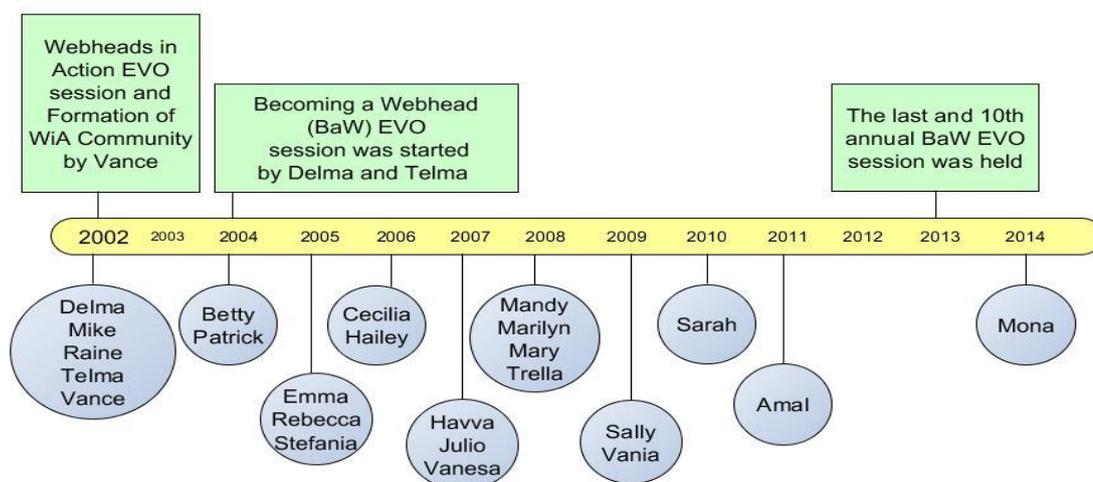
Figure 4. 3. Chronology of events and interviewees joining WiA community

Overall, the fact that almost all of the participants (23 out of 24), who voluntarily[29] participated in the interviews, had been involved with the EVO sessions and the very fact that the WiA community started as a result of an EVO session with the same title suggest that these sessions were an important factor for the WiA community (further discussion on the EVO sessions, BaW in particular, is provided in Section 4.3.2).

To sum up, learning about the educational uses of technology, networking, and joining the community after an EVO session were the characteristics that were found to be shared between members. The different aspects, which were considered to contribute to the diversity of the community, will be explored in the next section.

Heterogeneity

It can be seen, from the information provided in Table 4. 1 (above), that, although most Webheads were language teachers teaching English, they taught English as a foreign language (n = 46; 78 %) or as a second language (n = 13; 22 %)[30]. The higher number of Webheads teaching in EFL settings does, in fact, reflect the field of English language teaching, in which there are more countries where English is treated as a foreign language rather than a second language (see Kachru, 1985). In line with this observation, the Webheads participating in this

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[29] Voluntary participation in the interviews is considered as a sign of members' commitment to the community, since they were not offered any incentive but the presentation of the study findings to the community.

[30] There were 10 participants who did not specify their teaching context.

study were scattered around the world across six continents and 26 countries, with the majority of those countries being ones where English was taught as a foreign language (see Table 4. 2; a world map, which shows how scattered the Webheads are around the world, is provided in Appendix 12).

Table 4. 2. Countries where Webheads teach

Country	N	Country	N	Country	N
Argentina	7	Kuwait	1	Sudan	1
Australia	4	Morocco	1	The United Arab Emirates (UAE)	1
Brazil	4	Nigeria	1	The United Kingdom (UK)	2
Canada	1	Oman	1	The United States of America	6
Czech Republic	1	Online (USA based)	2	Turkey	2
Egypt	1	Poland	1	Ukraine	1
France	1	Portugal	2	Venezuela	7
Germany	3	Saudi Arabia	1	N/A	5
Iran	5	Slovenia	2		
Italy	1	Spain	4		
Total N: 69					

Additionally, the participating group of EFL teachers consisted of both native (*n* = 7; 15%) and non-native (*n* = 39; 85%) speakers of English, which also reflects the greater proportion of non-native English language teachers in EFL contexts (see Canagarajah, 1999).

Another difference observed between the Webheads was the different sectors of the education system in which they taught; for example, higher education or primary school level. WiA's Facebook and Google+ group pages suggested the community was open to teachers from all levels of the education system:

> "Webheads are EDUCATORS who seek to articulate and explore their own learning strategies…" (from 'about' section of WiA Google+ community)

> "Webheads are a community of practice of serious educators who like to have F.U.N. helping each other learn…" (from 'about' section of WiA Facebook group)

As such, there were five members (7 %) who reported that they taught in primary (elementary) schools, 15 (22 %) in secondary (high) schools, and 44 (64 %) in higher education (college or university). There were five members (7 %) who did not specify at what level of the education system they worked in. It is assumed that those participants did not respond to that section of the questionnaire because they had taught in private institutions such as language schools or

had their own teaching business with a variety of students of different age groups [i.e. Hailey (Active member: Response ID: 2), Cecilia (Core member, Response ID: 58[31])].

One last difference that was observed with regards to the *Subjects* relates to members' motivation for continuing as members. As explained in the section on "Homogeneity", most peripheral members' motivation for following the WiA community was to receive updates about educational uses of technology. However, whilst joining the community in order to learn more about how to use technology in their instruction, most active and core members reported that they had built friendships along their journey as Webheads, which can be seen as an important factor motivating those members to continue following and participating in the WiA community:

> "Because we had this communication which was quite friendly and we got to know each other so much that we are friends. By now, we have got to know each other so well[…] We know each other and we can rely on each other and we can ask questions and have them answered […] and this is a family really" (Raine, Active member)

> "The purpose is to learn about how to teach with technology but Vance -I know- will always say: 'And also just to develop global friendship'. That was always part of it, it was not just being a professional, and it was about who you were as a person and to develop friendship and respect, cultural understanding. So although these were never explicit, they have always been there" (Mike, Core member)

It is possible that a relationship exists between creating friendships and members' level of activity in the community, which will be explored in the following section on community interactions.

4.2.2. Webhead Interactions: Community

The concept of *Community* is central to the analysis of the WiA group, not only as a community of practice, but also as an activity system, because defining the structure of the WiA elaborates on the *Community* formed by its members. Furthermore, the structure of the community is closely interrelated with the activity taking place within the public spaces of the WiA, where members' practice is shared. As such, understanding the meaning of the activities, actions and operations of the WiA group depends upon an understanding of who the *Subjects* (members of the WiA group) are and how they cooperate in their object of activity. Section 4.2.1 provided information on who the members forming the *Community* are; how they interact is discussed in this section.

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[31] Response ID number are provided in Table 4.1 above and interviewees bio information can be found in Appendix 11.

4.2.2.1. Interactions within the public spaces of the community

As mentioned previously, 11 of the interviewees were considered to be peripheral members, nine to be active, and four to be core members. Understandably, core members had the highest level of participation in community interactions and they posted a majority of the messages to the community (see Table 3.6 in Section 3.5). However, during the interviews, two of the interviewees (Amal and Julio) were found to be unsuited to the peripheral member profile, since they were actively engaged in community activities such as giving a presentation in online gatherings of the community and co-moderating an EVO session which was related to the WiA community (see Appendix 11). Therefore, from this point onwards these two members will be treated as active members of the community.

When interviewees were asked who the other members they interacted with and/ or recognized in the community were, they often referred to active and core members, with Vance (Moderator/ Core member) being the most frequently mentioned Webhead (see Appendix 13). It should be noted that interaction, here, refers to a two way communication that is public or private with other members of the community and it should not be confused with participation, which can be one way as in the case of peripheral members, who primarily participate by following community interactions. In line with this, most peripheral members reported that they did not interact with other members but rather recognized their names from the community interactions that they had followed:

> "No, no, no I have not had any communication. I just watched" (Mona, Peripheral member)

> "I don't actually contact them […] I only know them through their videos. Through the webinars and the conferences" (Sally, Peripheral member)

This is in line with Wenger et al.'s (2002) argument that during the process of knowledge creation and practice development, members who contribute are given a chance to be renowned in the community.

One notable observation was that the interviewees who were considered to be core/ active members reported that, over time, their online interactions led to the creation of friendships with other members:

> "I should point one other thing which I think is important and that is […] we made wonderful and lasting friendships […] You know besides remembering these names as members of Webheads, above all I remember them as great friends" (Telma, Core member)

"People that I mentioned are the ones with whom I have had the most contact. Mayra [pseudo name] in Mexico, she is a very dear friend of mine. I am in touch not only through the Webheads but we stay close and we stay connected" (Mandy, Active member)

The fact that most of the interviewees, who touched on the topic of developing friendships with other members, were active or core members suggested a relationship between the members' commitment to the community and the development of friendships. As can be seen from the quote below, even after Mike felt that he had reached a level of saturation with regards to his aim of joining the community, instead of leaving the community he kept participating in and contributing to the community because of the friendships he had developed:

In the beginning it was fascination, excitement and wonder but then the next stage was… […] I guess I realized that I was getting a lot out of this community. It was enriching my personal and professional life […] So there was this point somewhere where I realized that I enjoyed that sharing so I was sharing what I was doing, I was sharing my knowledge, I was helping new people develop their skills and awareness but all the time getting things back from the community. It's interesting over time... When you are new in this field of teaching with technology, of course everything is of value because you do not know so much so you were so thirsty for all these information but […] then something else replaces it […] So it eventually became... Quite simply, there were a lot of people in the Webheads community that were my friends […] It started as a professional relationship but it became a real world community with people all over the world" (Mike, Core member)

4.2.2.2. *Interactions in real life face-to-face settings*

As stated above, the interactions that Webheads had with each other developed into friendships and in time Webheads started to meet each other in real life face-to-face settings[32]. Webheads seemed to visit/ host each other in their countries or meet in conferences that they attended in various places:

"…often we go to conferences and meet face-to-face" (Vance, Core member)

"Yes, with Amal [Active member] from Egypt […] I went to Egypt and we met there" (Mary, Active member)

Cecilia (Core member) explained that prior to visiting a country Webheads generally "shout out to the group: 'Is there anybody in the group living nearby …?". In relation to this point, during

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[32] The exceptions to this are; Cecilia who has first met members of the WiA community in a TESOL convention, Havva and Mona whose academic supervisor is a Webhead who encouraged them to join WiA, and Vania who was encouraged to participate by her colleagues who were already Webheads.

the nine months of message collection, there were, in fact, instances where Webheads informed the community about their travel plans and tried to organize face-to-face meetings with each other (see Thread 147 in Appendix 15, p. 279). The interview data suggested that TESOL's annual conference was the most popular conference where Webheads had met over the years:

> "…then we started meeting at TESOL conferences in the States" (Telma, Core member)

> "I met Cecilia in person at a TESOL conference a few years after I met her online" (Hailey, Active member)

> "All of those people I met on the internet through the Webheads but there was a big TESOL conference in New York. I think in about 2008 […] a lot of Webheads went and that's where I met [them]" (Mike, Core member)

More recently, however, IATEFL's [33] annual conference has also seemed to attract Webheads and members have arranged to meet each other at that event (see Thread 147 in Appendix 15, p. 279).

Having started their relationship with other Webheads in online settings, some interviewees reported that meeting Webheads face-to-face did not make a difference to their relationship since it felt like "meeting somebody you know" (Vania, Active member):

> "I mean I feel that I know them and seeing them or not seeing them it makes no difference" (Stefania, Peripheral member)

> "I felt like I knew them forever, really!" (Cecilia, Core member)

One possible reason for this perception can be the technologies that the community utilizes in their interactions, which mirror face-to-face interactions:

> "People keep saying that the Internet is not the same as face to face. Well, yes, of course. The only thing that is missing is the human touch. But then you know, we are near each other, we can see each other, and we can share time. I love the way we can communicate and I don't really think that there is too much of a difference" (Raine, Active member)

In addition, it is possible that since they interacted regularly with each other, Webheads, who developed friendships online, had a strong online presence, which as Telma (Core member) explained: "It is the bonds that we create online that really create fantastic friendships, lasting friendships and make us enjoy our face to face meetings much more".

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[33] IATEFL is an acronym for the International Association for Teachers of English as a Foreign Language

Nevertheless, while some did not perceive a difference between online and offline (real world) interactions, there were quite a few interviewees who expressed that meeting other Webheads in real life positively contributed to their relationships with those members and the community:

> "I mean meeting them face to face just strengthened our bonds. You know it was always a pleasant surprise" (Julio, Active member)

> "Maybe you create tighter webs with the person that you meet face to face…" (Delma, Active member)

> "It's wonderful. We do so much work online together that when you meet face to face, it's like coming to grips with your family and it does not feel strange" (Sarah, Active member)

In the light of evidence presented so far, we can conclude that the Webheads' online presence resulted in friendships, which later on were extended to real life, which in turn seemed to have strengthened their relationships.

4.2.2.3. Overlaps with other communities

The Webheads in this study were also members of different communities and networks. As explained in Section 4.2.1.1, the WiA community started following an EEVO session, which was part of the wider TESOL network. As we have seen in the previous section, TESOL's annual conferences were a popular place where Webheads met and/or were introduced to the community (i.e. Cecilia). Additionally, some interviewees were members of the EVO organizing committee or were moderators on the EVO sessions (see Appendix 11), suggesting an overlap between the Webheads in Action (WiA) and EVO and, thus, between the WiA and the TESOL organization. As such, when asked about the connection between EVO and the WiA group, Vance replied:

> "I noticed […] that Webheads started joining, started becoming part of CALL-IS. So they started infiltrating themselves into CALL-IS. CALL-IS is the sponsor of the EVO session. So all these things you see, they are coming together. The people, like-minded people basically are just occupying overlapping spaces" (Vance)

Another overlap seemed to exist between WiA and IATEFL, Derek, who was an interviewee during the piloting stage, was a member and a leader of one of IATEFL's Special Interest Groups (SIG). In line with this, as discussed in the previous section IATEFL annual conferences also became a place where the Webheads would meet. Additionally, IATEFL events were advertised in the WiA community, as well as in the EVO sessions (see Thread 94-p. 272-; Thread 107-p. 271-; and Thread 147-p. 279- in Appendix 15).

In addition to these international organizations, the Webheads also revealed that they were members of more local communities:

> "So the people from Slovenia, we are part of a community. We have an association of language teachers where we meet and collaborate" (Vania, Active member)

> "We founded an association here in Venezuela, CALL Venezuela and then we started having networks with other associations and one of my colleagues […] joined Webheads and then she shared that information with us and I started working with them" (Trella, Peripheral member)

It is possible that while some members were active in the WiA, they had peripheral participation in other communities they belonged to and vice versa:

> "I mean you are active in Webheads maybe at this particular time but I am sure that you are engaged in a 100 other communities […] You can't engage in all of them but you basically keep an eye on them" (Vance, Core member)

This suggests that even though EFL teachers reported to have developed their knowledge and understanding of how to integrate technology in the WiA community, the skills they developed could have been the result of their interactions in other communities as well.

In short, the data suggests that as well as being members of the WiA community, the Webheads also belonged to other communities. Having looked into the *Community* aspect and members' interactions both in online and offline settings, the next section will explore the computer mediated communication (CMC) *Tools,* which enabled members' online interactions.

4.2.3. Webhead Spaces: Tools

It is important that a community's virtual space appeals to its members, since it is that virtual space which allows the communication to occur between the members. The results showed that the Webheads utilized multiple platforms, which included both synchronous and asynchronous communication tools (see Figure 4. 4).

The asynchronous CMC tools included platforms such as the WiA Facebook, Yahoo!, and Google+ groups. The most popular platform, however, was the WiA Yahoo! Group, which was the first platform to be utilized by the Webheads. As such, 23 out of the 24 interviewees reported, that they used the WiA Yahoo! group as their main communication platform with the other Webheads. To refer to the Yahoo! group, interviewees used terms such as "standard" (Vance), "centre of communication" (Telma), and "life blood" (Mike). Webheads "traditionally kept its Yahoo! group", Emma added. It is likely that, given that the Yahoo! group
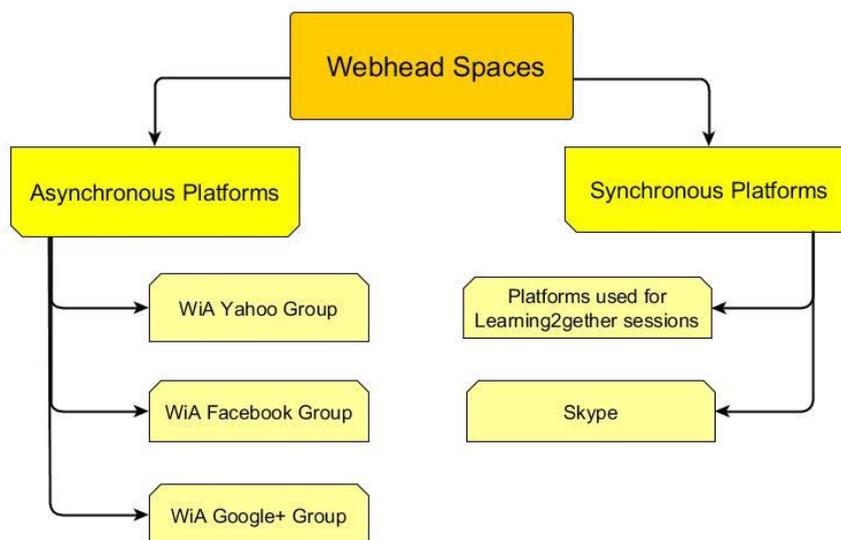
Figure 4. 4. Webhead Spaces: Platforms used by the community

was the first communication tool to be employed by Webheads, over the years more members have been gathered together via the Yahoo! group. This suggestion was confirmed when the number of registered members[34] was compared across these three platforms. Vance explained that there were about 750 registered email accounts on the Yahoo! Group, which is considerably higher than the 294 members of the Facebook group (as of 17.11.2014) and 176 (as of 17.11.2014) members on the Google+ platform. Furthermore, a majority of participants who responded to the questionnaire accessed it through the link shared on the Yahoo! group.

There were a small number of interviewees, who in addition to being members of the Yahoo! group, also reported that they followed the Facebook and/or Google+ WiA groups. There was only one interviewee, Sally (Peripheral member), who reported using the Google+ group *only* to follow the Webheads. An important feature of the Facebook and Google+ platforms is that they allow messages to be sent, that included text, graphic, audio, and/ or video; this was cited as a main reason for why Sally and Sarah (Active member) preferred Google+ and Facebook, respectively to the Yahoo! Group, where interactions were mainly text based.

When it comes to the synchronous tools, interviewees reported the use of the Blackboard Collaborate (Elluminate) and Google+ Hangouts for the regular online Webhead

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[34] The numbers show how many people registered to those groups. However, how many of those actually follow the community is not known since they might have stopped participating without unregistering themselves.

136

gatherings called "Learning2gether"[35]. Interviewees seemed to appreciate the availability of such synchronous communication tools, since they provided "the personal feel" (Hailey, Active member) of communication that is similar to real life. Utilizing synchronous CMC tools "is a very powerful means of communication" since "you can see people, you can listen to them, [and] you can […] visualize what they are talking about through the PowerPoints", Cecilia (Core member) emphasized. There were also a few Webheads who utilized Skype for "personal one-to-one" communication with other Webheads (Delma, Active member). During data analysis, a number of themes were identified with regards to the use of those synchronous and asynchronous CMC tools, which will be explained below.

4.2.3.1. Content and amount of interactions

As explained above, the Yahoo! group was the most frequently used asynchronous tool by the Webheads. The analysis suggested that the main reason for this was the perception that the WiA Yahoo! group was the primary source of information relevant to members' interest. For example, Stefania (Peripheral member) considered that she did not miss any of the information shared among members since she followed the Yahoo! group. Similarly, Rebecca (Peripheral member) pointed out that the content of the Yahoo! group messages was "not so chatty" and "more usable, directly usable to me". In line with these points, it seemed that interviewees made use of the messages shared on the Yahoo! group where possible:

> "…one of the emails I got interested in was one about Krashen […] they posted a video conference […] The things that I am interested in I join them but I just got the recording and that was very useful for me" (Trella, Peripheral member)

Different from the Yahoo! group, interviewees explained that the messages shared on the Facebook and Google+ WiA groups were not discussion oriented but acted more like reminders of community activities, which can be seen to be one of the reasons for the overall preference of the Yahoo! group over the Facebook and Google+ groups:

> "On Facebook what happens most of the time is that […] I just check the events because Vance is posting the events there" (Havva, Peripheral member)

> "…when it's an event and I would like to let people know about […] I go to Facebook and I share it there to let other people try to join" (Amal, Active member).

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[35] The Learning2gether online sessions will be explored further in Section 4.3.1.2 as part of the artefacts.

This point was reiterated during the member checking process where Vance stated that what he posted in those platforms was usually updates about the upcoming events and commented that those two platforms were underused by members.

4.2.3.2. Ease of use

Interviewees considered the Yahoo! group as "basic" (Mike, Core member) and "technology friendly" (Vance, CM). The reason for this was that as well as having a webpage and a unique URL for the WiA Yahoo! group, the Yahoo! platform acts like a listserv and disseminates the community interactions to the registered Webhead email addresses. All interviewees using the Yahoo! group reported that they either received every single message sent to the community through email or they received a daily digest email which combined and systematically listed all the exchanged messages within the community on a given day. It was generally the peripheral members who reported using the daily digest as a means of receiving the community interactions. In contrast, active and core members preferred to receive each message as they were sent:

> "I choose to get them instantly. I don't like daily digest. There are days when my inbox is flooded but I like getting all the messages" (Hailey, Active member).

> "I read the daily summaries and if there is anything that I feel like I can contribute, I just reply" (Vanesa, Peripheral member).

Telma (Core member) and Raine (Active member), on the other hand, reported that they preferred to use Skype for interacting with community members but their reason for this selection was similar to the selection of the Yahoo! platform. They considered Skype to be "practical" (Telma) and "quite simple […] like a phone call" (Raine).

4.2.3.3. Integration to daily activities

As explained above, members generally received community interactions through an email client. In addition, the use of email seemed to be a regular activity which was embedded in the interviewees' lives and can be seen as another reason for the preference of the Yahoo! group:

> "I open my email from my phone or from my tablet, several times a day" (Delma, Active member).

> "I have my email open as soon as I turn on my computer and I have my android. So […] I receive the emails every day or every minute" (Mary, Active member).

In this sense, it can be argued that the Yahoo! group platform works like a push technology by sending all communication taking place in the community to its members and allows the

members to respond to these messages by replying to the emails they receive without having to navigate to the community's webpage and login before responding:

> "Uhm well the email arrives regularly and then uhm so I check it there […] and if I have something to say that may be of interest then I send it through email" (Betty, Active member)

Similarly, Telma (Core member) "use[s] Skype on a daily basis" suggesting that using Skype is one of her regular activities, which can therefore be interpreted as the reason why she preferred it over the other platforms:

> "…we can start chat any time you know that I am here at the computer. If somebody needs me I am here" (Telma).

In summary, the synchronous and asynchronous CMC tools that the Webheads utilize in their interactions have been introduced throughout Section 4.3.3 and the reasons for why those tools are preferred have been identified as: 1) content and amount of interactions on a platform; 2) platforms' ease of use; and 3) platforms' integration into members' daily activities. So far, we have looked into who the Webheads are, why they participate in community activities, and how their interactions are enabled through different means of CMC tools. Now, in the next section, the norms (*Rules)* that guide those interactions will be explained.

4.2.4. Webhead Culture: Rules

As we have seen in Section 4.2.1.1, the Webheads are from different countries and have different backgrounds. It is important, therefore, that the culture of the WiA community responds to the diversity of its members. In line with members' statements, no explicit norms have been identified on the virtual spaces Webheads utilized. Therefore, the norms that have been reported by the interviewees' can be considered to be implicit:

> "We have never had rules or norms; we have always gotten along very well […] So everything is very natural" (Telma, CM).

Those implicit norms seemed to be learned through observations of community interactions. As such, even Mona, a peripheral member who had recently joined the community, was aware of some of the norms that were reported by other interviewees. After the thematic analysis of the interview responses, the norms were grouped as DOs and DO NOTs (see Figure 4. 5).
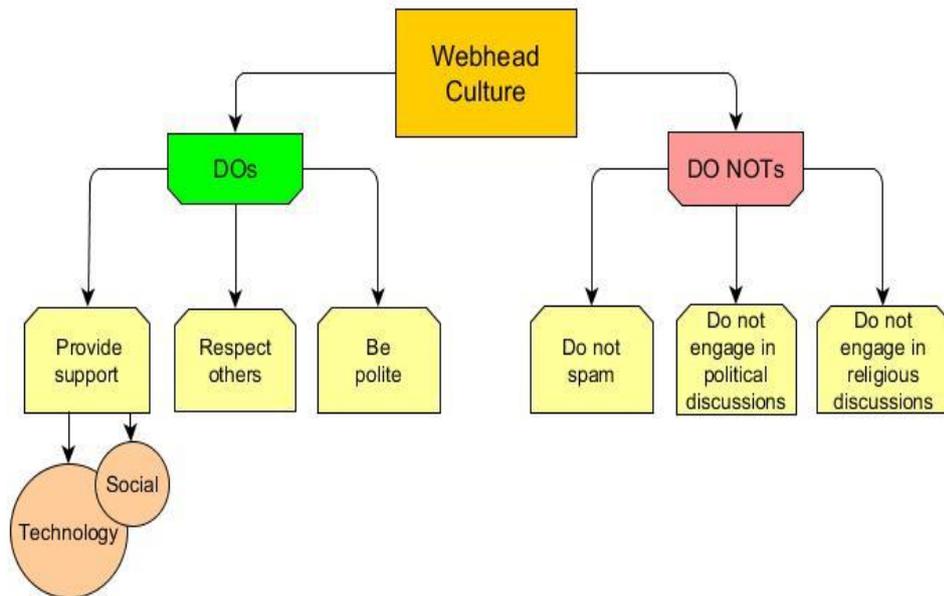
Figure 4. 5. Webhead Culture: DOs and DO NOTs

4.2.4.1. *Providing support*

The most frequently mentioned norm was that members of the community try to support each other. "Support is there all the time", Raine (Active member) remarked. The support that was reported by the members takes two different forms; support with technology and social support.

Technology support

> "We try to encourage people to use technology, so everything they post at start is accepted. We see every educator's effort to use information communication technology as their first trial and we don't require them to be perfect, so we try to be supportive" (Julio, Active member).

In line with Julio's quote above, the Webheads explained that they support each other by responding to help requests about technology. Interviewees reported that "there are no stupid questions" (Rebecca, Peripheral member) and "no one is left unanswered" (Hailey, Active member), when queries are directed relating to technology. Similarly, Emma (Active member) expressed that "a request for help is never ignored [...] always there is at least one person who replies" to such requests. This suggests that there is a perception among Webheads that regardless of their level of activity a member's query will be responded to:

> "...it is a community of everyone, it's not an exclusive community of those in the know but it's a community of sharing [...] They have always maintained: 'We will help everyone' " (Rebecca, Peripheral member)

Additionally Vania, who has asked for help from Webheads in the past, stated that she received answers to her question quickly:

> "Yes, I think during these years, I posted a few questions and the reply came instantly, very kind, very informative, so yes I received support" (Vania, Active member)

The analysis of the nine-month message history supported the above points. During the nine month period, there were 18 topics in which Webheads requested information or help with certain types of technologies (see Section 4.3.1.1). Similar to Vania's experience, it was found that at least one response was posted to each query within the same day.

Interviewees' responses suggested that technology support within the community is also reflected in the form of members' sharing their knowledge and expertise of particular technologies, as well as informing each other of the upcoming online events. Likewise, the quote below from Raine (Active member) suggests that Webheads share their experiences of using different technologies and report to the community both positive and negative aspects of those tools, which can be seen to contribute to their professional development:

> "We just share our experiences. Well this is wrong, this has not worked for me, or it did work because my students did this and did that, and we used that web tool. We share all that and this has made us very rich professionally speaking" (Raine)

Similarly, Telma (Core member) maintained that Webheads "discuss tools" and "tell people about a new tool that has come about and so on and tell them: 'Do try it! Because it's very useful, interesting, and so on" (also see Thread 184 in Appendix 15, p. 278). Delma (Active member) made a striking statement that it was thanks to the sharing of technology knowledge among Webheads that the community survived for such a long time:

> "People in our community just want to share things that they find they are good for teaching or learning and that's what this community is all about and I think that is why it has lasted for so many years and that it is still active" (Delma).

Apart from sharing their experiences with particular tools, Webheads also inform each other about the events and/ or resources that are available online. Amal (Active member) stated that they "have regular announcements of the Learning2gether events which is generally every week" and "announcements of conferences, online events". In line with this claim, the analysis of the nine-month month message history revealed that there were 62 topics, which were grouped as invitations, including invitations to submit proposals for (e)conferences/ journals, to participate in (e)conferences/ webinars, and to collaborate (see Section 4.3.1.1).

Social Support

Although the WiA community is oriented at exploring and learning about the educational uses of technology (see Section 4.2.1), the sharing of feelings such as sadness and success seemed to be welcomed within the community and was expressed as a norm by the Webheads. Vance and Mike (Core members) reported that members shared information about their personal lives from time to time and that was allowed in the community. Mike added that Webheads were interested in knowing each other and that as Webheads we would share information about "the milestone moments in our lives" with the community. The following quote from Amal (Active member) also supports this point:

> "…they can share social stuff, some nice events that happens to people, uhm, even good relationships, good friendships between people. They might share photos, sometimes, of events where they meet and so on…" (Amal).

Vance explained that Webheads "respond a lot to people's just talking how they feel". Based on the above extracts, it seems that Webheads listen to and support each other with issues not only relating to their professional lives but also the personal lives. At this point the following anecdote from Cecilia (Core member) provides a good example to illustrate how the "Webheads really stand for the group when needed":

> "Marcelo […] is an old Webhead, he is really from the beginning of the group and he run something called 'Real English' and it's a website with videos for EFL and ESL students run for free and it's been there for years. […] and then there was a guy here in Brazil. He got all of the content and packaged it to sell it to other people. So it was really piracy you know and then Marcelo mentioned that in our Webhead group and then we all stood against that and we sent emails, lots of emails saying that if he didn't do anything we would sue him" (Cecilia)

Also, Telma (Core member) stated that when some of the community members are located "in areas involved in trouble", the Webheads provide "morale support" for those members:

> "For example, when the problem started in Ukraine back in November [2013], I started being much more in touch with friends in there" (Telma).

Similarly, the findings of the documentary analysis supported Webheads' statements above. There were 21 threads, which were identified as social messages, shared within the Yahoo! group during the nine-month data collection. Those topics ranged from sharing feelings, to arranging real life meetings with other Webheads, and holiday celebrations (see Section 4.3.1.1).

4.2.4.2. Respecting other members

Respect "is something we value", Delma (Active member) expressed. Havva (Peripheral member) explained that one of the most important norms within the WiA community is "respecting people's culture and background". It is worthwhile to remember that Webheads are dispersed around the world, across five continents (see Section 4.2.1). Since the WiA community has existed for the last 12 years, it is not surprising that members consider "respect" to be one of the main norms. Rebecca (Peripheral member) added that Webheads "will respectfully respond" to any query and Vanesa (Peripheral member) conveyed similar ideas:

> "I guess there is uhm respect for everybody ideas and uhm the idea of democratically sharing without a hierarchy" (Vanesa)

Similarly, Delma explained that Webheads have their own ideas and share those with others and it is possible that "you may like them or not and you may discuss why you don't like this or the other, always respectfully". Thread 23 can be seen as a good example of Delma's point. In Thread 23, Derek shared a link to a video discussing technology and the future of learning, which he found "thrilling". However, Gareth responded to this message stating his disagreement and provided explanations to why he disagreed (see Appendix 15, p. 277). Last but not least, in line with other Webheads' statements, Amal (Active member) stated that within the WiA community "nobody interferes in other people's decisions".

4.2.4.3. Being Polite

Mary expressed that "politeness is at the top" within the WiA community and a number of different examples were provided by Webheads as a demonstration of Webheads' politeness. For example, Mary stated that when they refer to other community members, Webheads use the adjective "dear" before the names as a sign of politeness. She added that "if there is a problem or a situation, we always say we are sorry about this or we apologize for this". When a member shares information in the community, it is a norm "to say: Thank you! [and] to show gratitude in a very positive, cheerful, and supportive way", Vania (Active member) remarked. Notably, Stefania (Peripheral member) indicated that, even when the community was harassed by one of its members a few years back, the community approached him and "warned him politely that this is not the way to behave in this group". Similarly, in Sally's (Peripheral member) eyes, the Webheads "are all very nice and polite [and] nobody is ever discouraging or making you feel stupid". In line with these observations, when the Yahoo! group message history was analysed, it was found that the use of terms such as "please", "dear", "hugs from [….]", "thanks", "best wishes", "cheers from […]", "sorry for…" were common.

4.2.4.4. Avoiding spamming

The Oxford English dictionary defines spam (n.d.) as "to flood (a network, the Internet, a newsgroup, or individuals) with a large number of unsolicited postings, or multiple copies of the same posting". In relation to this, Mike (Core member) explained that self-promotion or advertisements are not acceptable in the community unless they are aimed at initiating interactions. Similar statements came from Cecilia (Core member) and Hailey (Active member), the former highlighted that the community is not "a space for self-promotion" and the latter put forward the following argument:

> "It [the community] is not a place to sell; it's a place to learn and help others learn and a place to celebrate what's happening in technology, education" (Hailey).

Vance (Moderator, Core member) elaborated on this issue further by stating that people can and are encouraged to promote their work if what they are promoting relates to the community and/or has "academic value" but "not commercial":

> "You can promote what you are doing. We encourage that. Your PhD for example, you could say it is self-promoting but you know it is still something that benefits everybody so that's not the kind of self-promotion we are talking about" (Vance)

In fact, as mentioned previously, there had been an incident a few years back in which one of the members started to harass the community by sending spam. Almost all interviewees, who had been Webheads prior to that incident, made reference to that incident while talking about "avoiding spamming" as a norm. For example, Mandy (Active member) expressed her feelings about encountering that situation by stating:

> "The only thing that [...] the community does not tolerate is when you have this [...] people who keep pestering you. There was one who harassed the community [...] It seemed that he enjoyed picking quarrels and harassing people and it was really nasty. So, it was uncomfortable" (Mandy, AM).

In line with the norms identified above, Stefania (Peripheral member) explained that the spammer was warned "politely" that his behaviour was not appropriate. Likewise, Vance (Moderator, Core member) indicated he "wanted to be quite flexible" and made attempts to reach an agreement with the spammer. After continuous spams, however, Vance eventually realized "how unreasonable he [the spammer] was". In the end, as the moderator of the community, Vance decided to ban the spammer from the community and remove him from the member list. This was the only case of spamming that was reported by the Webheads and the analysis of the Yahoo! group messages suggested that during the nine month data collection period there were no spam messages sent to the group.

4.2.4.5. *Avoiding political discussions*

Avoiding political discussions was another norm that was reported by interviewees. In relation to the norm of respecting others, the Webheads reported that having political discussions within the community can result in conflicts, which could negatively affect community dynamics. Further, such discussions can divert the community's focus from its aims. However, this did not seem to be the case for the WiA community:

> "…sometimes I got into lists and I get tired of them because they say the list is going to be about something specifically and they start sending things about politics or human rights or some other things which is completely different. So this is one of the lists I would say is consistent to their aims…" (Trella, Peripheral member)

> "…politics have been left aside and uhm we are all members of a community. We get together because we have these aims in mind which have to do with education and changing the paradigm of education" (Raine, Active member)

Julio (Active member) highlighted that "avoiding controversial issues" such as politics is a norm which has been applied because of the possibility that such topics might "generate a heated debate". The following anecdote from Amal (Active member) serves as an example to illustrate Julio's point:

> "So, for example Egypt, we have gone through lots of different political problems and I had friends on Facebook [who were] teachers. They interfered to the point that I had to like end my talk with them but it was never never mentioned in the Webheads" (Amal)

The reason for why such problems, as highlighted by Amal, have never been an issue in the WiA community is, as Delma explained, "because we want to be open to anybody". This point was further supported by Julio (Active member) who considered the community to be "like a mini UN [United Nations]".

Last but not least, Mike (Core member) pointed out that if a topic starts to get political, then Vance, in his capacity as moderator, will step in and suggest that the members discuss that particular topic somewhere else. He elaborated on this norm further and stated that if a topic relates to politics but also has relevance to teaching then it might be discussed within the community. In line with above points, the analysis of Yahoo! group messages suggested there were no political discussions that took place within the WiA community.

4.2.4.6. Avoiding religious discussions

Similarly to politics, the interviewees reported that avoiding religious discussions is another norm of this international community. The community is "open for everything except for the issues that maybe relates to religion and politics", Amal (Active member) said. Delma (Active member) reiterated the points covered in the previous sections about how the learning objectives of the community are given priority by stating:

> "We don't care what religion or which political party a person belongs to you know, we care about the individual, the individual who wants to learn, the individual who wants to share the knowledge etc." (Delma)

Mary (Active member), on the other hand, approached this topic from a different perspective and conveyed the idea that as part of the norm of respecting other members, Webheads would congratulate each other's religious holidays:

> "I don't know if you are a Muslim or if you are a Jewish or not. Whatever your religion is we always say, if it is Christmas let's suppose: 'Happy Christmas! Merry Christmas!' […] or 'Happy Hanukkah' or […] 'Happy Ramadan' " (Mary)

The analysis of the Yahoo! group messages showed that the Webheads did, in fact, celebrate each other's religious holidays. There were message threads, which were devoted to Eid (a holiday that Muslims celebrate) and Christmas (a holiday that Christians celebrate) (see Section 4.3.1.1). Those threads included celebration messages only and no religious discussions took place. This suggests that whilst religion is avoided as a topic of discussion, it is, at the same time, used as a means for building rapport and/ or sustaining relationships among members.

To summarize, though not explicit, a number of norms have been identified, which regulate the Webheads' interactions. These norms, which formed the Webhead culture, were identified as: 1) support other members; 2) respect other members; 3) be polite; 4) do not spam; 5) avoid political discussions; and 6) avoid religious discussions. The availability of these cultural values suggests that the cohesion of the group is more important than the individual, which was exemplified in the case of a spammer, who had harassed the community, being banned. In the next section, we will explore how and what roles members take on in the WiA community.

4.2.5. Webhead Roles: Division of Labour

We will analyse the nature of contributions to the community prior to investigating what roles the interviewees took on in the Webheads community. The references to "informal learning" and "helping each other learn" in the Webhead group descriptions on different platforms, suggest a non-hierarchical division of labour within the WiA community, which was also expressed by a number of interviewees:

> "…there is no ranking, nobody is better than anybody" (Julio, Active member)

> "…there is no judgement about contributions and everybody shares" (Vanesa, Peripheral member)

This also suggests that Webheads are an open community, who aim to get all members involved. This point was further supported by Delma (Active member) and Mike's (Core member) comments that the community has a bottom-up approach and discusses topics that the members are interested in, which also suggested a situated approach to learning in the WiA community:

> "Also, there is nothing like 'This week we are going to discuss how to do...'. It's nothing like that. The topics come from the members" (Delma)

> "…when people would turn up at the Sunday session what will happen would happen and I think that has been a kind of prevailing or underpinning philosophy. It's organic, it's ground up" (Mike)

In line with these points, interviewees reported that there was not any assigned roles within the community, which suggested contributions to the community were made on a voluntary basis. Vance expressed that "every person has his or her unique contribution" in the WiA community, which seemed to be positively welcomed by the members since it allowed for increased learning opportunities:

> "I love the different things we learn from every new person that steps up" (Hailey, Active member)

Similarly, interviewees reported that Webheads were allowed to take on the roles they wanted to take on within the limitations of their time and skills, and without being pushed into it:

> "…So, it was three days in a row, you know, day and night. […] Sometimes we were on computer for 12 hours and we were there because we wanted to. At the beginning you know it's just the organization: 'How are we going to do this? ' 'How are we going to do that?' and you get involved if you want to get involved nobody tells you have to be on the computer for 8 hours, you know, but you say I am

going to be there because I want to […] and you know people take on the roles that they want to take" (Delma, Active member)

"I think it's a very interesting way of showing how the community can work when each person can do what they can do, something according to their skills, their time, their commitment. So nobody forces a member to do something. I mean everything comes out from their own will" (Vanesa, Peripheral member)

Consequently, the division of labour, though not equally, seemed to be distributed among all members of this international community, which was considered to help "complement each other" (Julio, Active member):

"Different people contribute differently. I mean each member has a role […] I don't know an active member or just […] a lurker […] Somebody brings expertise, somebody brings ideas […] I think this abundance of different people, different characters, different views just adds to the wealth of experience […] of the community" (Stefania, Peripheral member)

Mike (Core member) explained that the reason why there have not been any roles assigned to individual Webheads was Vance's "easy going" approach, which is "quite informal". He added that "they could have been more structured and formal" but he doubted whether "that would have been any better". With regard to this issue, Vance (Moderator/ Core member) explained that the WiA community provided a space in which members could accomplish their aims and objectives for joining the community. Those members, then, decide to return and make contributions to the community:

"…no one promotes an agenda here but each person has his or her agenda and it seems that Webheads is compatible with their agenda. So, they do what they want to do and develop themselves and use other people in the community and then […] come back and contribute" (Vance).

In line with Vance's statements, there seemed to be a connection between what members gained from the community and their contributions to the community. Members who were considered to be active or core members made statements claiming that after benefitting from the community, they deemed it necessary to contribute back to the community:

"So I thought that besides learning with the Webheads, I needed to give my share because I had learned so much with them so I felt compelled to share with them and with my network" (Cecilia, Core member)

"… once you realize that […] you are receiving and getting and taking and you are learning and you think: 'Hang on! I need to give back', I can't just take" (Mike, Core member)

> "... as you learn and you see others coming, you want to give back what you have received, right?" (Betty, Active member)

The above quotes suggest that active and core members were motivated and committed to participate actively in the community since they themselves had benefitted and gained knowledge. Likewise, Telma (Core member) continued her active participation in spite of her "overwhelming" workload and time limitations, unlike peripheral members who generally reported that they were not able to contribute as much due to time limitations:

> "I mean when I was working full time and carrying on 'Becoming a Webhead' and I was still part of Webheads in Action and so on. It was overwhelming in terms of workload but I did it so enthusiastically, I did not want it to stop" (Telma, Core member)

> "I read some of them [messages] if I have time. Like I am telling you, I am sort of super busy at the moment" (Mona, Peripheral member).

> "Because I am extremely busy with, especially, administrative work" (Trella, Peripheral member)

Additionally, a number of peripheral members also explained that they did not feel knowledgeable enough to contribute to discussions, suggesting that they had not yet developed the knowledge and skills they deemed necessary to actively contribute to the community:

> "Uhm, I don't really feel I am confident enough, I don't really have anything that I can teach them" (Sally, Peripheral member).

> "I have the feeling that I can have a role when I do spent the right amount of time needed and get involved with other Webheads" (Mona, Peripheral member)

The above points support Lave and Wenger's (1991) idea of legitimate peripheral participation which signals a link between different levels of contribution to the community (the knowledge and skills gained from community participation will be further explored in Section 4.3.3.). Now, it is timely to explore what activities Webheads carried out that can be seen as contributions to the community.

4.2.5.1. *Contributions to the community*

As discussed earlier in this section, contributions in the WiA community are made on voluntary basis, which implies that the members engage in different levels of contribution. In this section, the members' level of contribution is presented according to different levels of participation; core, active, and peripheral.

Core member contributions: 1) Leadership/ Moderation

The core members were referred to as "gurus" (Julio, Active member; Sally, peripheral member) and as the "ribs and skeleton" of the community (Hailey, active member), who can "direct attention to where the attention is needed and they can also play the role […] like a teacher in a classroom. They coordinate, they are the model themselves; they provide a successful model for the rest to follow" (Mona, Peripheral member). Similarly, Marilyn also referred to core members as leaders who "act like exemplary models of what can be done and they give advice" (Marilyn, Peripheral member) and Delma (Active member) added that "leadership is like turn taking", which suits the non-hierarchical division of labour in the WiA community. Apart from modelling participation, it was reported that core members also provided support by "sharing experiences and information" (Trella, Peripheral member), and motivated members by complimenting their participation:

> "They do support in the technical things but they also… when you achieve something, they give you a lot of uhm praise I guess and say: 'Well done!'" (Sally, Peripheral member)

The core members were considered to be leaders and this leadership role rotated between the WiA members; however, there was one member whom was consistently referred to as "the glue that keeps group together" (Telma, Core member) and the one "keeping it alive" (Cecilia, Core member). It is no surprise that this person was Vance, the founder of the WiA community. Vance was considered to be the leader by most of the interviewees and Mike (Core member) explained that "apart from Vance, there is no one who does a regular duty" and that he is "the principal facilitator". A number of different terms such as "kingpin" (Sarah, Active member), "the father of Webheads" (Havva and Patrick, Peripheral members), and "the driving source behind Webheads" (Vanesa, Peripheral member) were used to define Vance's role and the importance of his leadership. In fact, as the founder of the community, Vance is the moderator of the Yahoo!, Facebook, and Google+ WiA groups. Furthermore, he coordinates and hosts the Learning2gether events, sends regular updates to all WiA platforms by providing links to the recordings of previous and upcoming Learning2gether events, participates in discussions taking place in the various WiA platforms, and also advertises community events in different networks. In line with these duties, analysis of the message history revealed that Vance was the member who had posted the highest number of messages during the nine months of Yahoo! group messages (see Table 3.5 in Section 3.5).

Additionally, Vance is also considered to be "a very democratic coordinator" (Telma, Core member) and was referred to as a "cat herder" (Mike, Core member; Raine Active member). The reason for members' use of the term "cat herder" was explained by Vance

himself to be related to the way he managed the community, which he considered to be coordination rather than management. This implied that he tries not to be seen as an authority figure. To provide an example of his cat herding, Vance stated:

> "If I see an issue coming out, a lot of times I would stay out of it […] I am not the kind of person who has to have a say in everything. If I see something coming up potentially irritating or if somebody gets irritated or whatever, I will let them work it out. […] Sometimes it's better to just keep your hands off, you know, and let the community sort it out" (Vance, Moderator/ Core member)

That, however, does not mean that he does not interfere at all. When the community was harassed by a spammer, for example, Vance took the initiative and removed the spammer from the community, following the failure of his repeated attempts to come to an agreement with that member (see Section 4.2.4.4).

Core member contributions: 2) Technology stewarding

As previously discussed in the literature review, technology stewards have been identified as individuals with "*enough experience of the workings of a community* to understand its technology needs, and enough experience with or interest in technology to take leadership in addressing those needs" (Wenger et al., 2009, p. 25). As such, apart from being seen as leaders, the core members can also be considered to be the technology stewards of the WiA community. To begin with, after participating in a conference where she had met other Webheads face-to-face, Cecilia felt in need of a space where they could share photos of their meetings with other Webheads. Consequently, Cecilia created a Webheads Flickr[36] account:

> "It was in one of the conferences and then we decided that we should have a Flickr account with the images we get from the conferences that we get together, the Webheads get together around the globe. So I decided to create the Flickr account" (Cecilia, Core member)

On the other hand, Telma (Core member) reported that while they acquired knowledge of how to use basic web communication tools during the first WiA EVO session, the community "started to going into more sophisticated stuff". Since she felt there were others, who would be interested in a workshop similar to the first WiA EVO session, Telma (Core member), together with Delma (Active member), decided to create a new workshop that she considered to be "an off-shot or a sibling of the Webheads in Action"; this new session was named "Becoming a Webhead (BaW)". Telma stated that the BaW EVO session aimed "to go

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[36] Flickr is an image hosting and video hosting website, and web services suite that was created by Ludicorp in 2004 and acquired by Yahoo! in 2005 (see www.flickr.com)

back to basics", which helped "people to learn about let's say simple […] web communication tools". This session was considered to have supported new members in their use of the technologies the community adopted. Further, Cecilia highlighted that the BaW EVO session she participated in provided "a transitional period" in the process of joining the WiA community (more details of the BaW EVO sessions are provided in Section 4.3.2.1).

Last but not least, Vance, apart from founding the community, has continuously introduced new platforms and tools for use in the community. For example, Vance introduced the Learning2gether synchronous sessions when he felt that the community had started to "taper off". Prior to the introduction of the Learning2gether sessions, there were TappedIn synchronous chat sessions at 12:00 (noon) GMT on Sundays, where WiA members were invited to come together to discuss issues of relevance. Furthermore, the community organized three biannual online conferences titled "Webheads in Action online Convergence (WiAOC)" in 2005, 2007, and 2009, which lasted for three days and nights (non-stop). Vance explained, however, that it was always the same members who participated in the TappedIn sessions, which indicated that there was a lack of participation by new comers. Further, there were not enough volunteers to bring together an organizing committee for a fourth WiOAC; therefore, he came up with the idea of spreading the WiOAC sessions throughout the year, resulting in the creation of Learning2gether (more details of the Learning2gether sessions are provided in Section 4.3.1.2). Additionally, two synchronous online platforms (Blackboard Elluminate and Google+ Hangouts) are set up and prepared by Vance, for use prior to the Learning2gether sessions. As such, before the Learning2gether session in which the member checking process (for the present study) took place, I met with Vance (online) to test out the Blackboard Elluminate platform in an effort to prevent potential software and hardware problems. These points suggest that core members realized and understood WiA community's needs in relation to technology and have contributed to the community by providing solutions which supports the idea that they were technology stewards of the WiA community.

Active member contributions: Subject matter experts and support persons

Whilst acknowledging their activity within the community, active members seemed to realize that they did not contribute to the community at the level of core members:

> "Well I would say that some members are more active than others. I could say Telma [Core member] for example is more active than me" (Raine, Active member)

Generally, active members reported that they helped other members by responding to queries when they felt they had considerable expertise in the topic of discussion and they also helped

other members by sharing their information and resources with them. The role active members played was, therefore, similar to the role of subject matter experts, as discussed in the review of literature (see Section 2.4.5.2):

> "Yes, for example if someone is asking about how to use some tool that I am using at the moment well then I reply, telling them what I know about that tool" (Mandy, Active member)

> "Oh yes, I have contributed uhm you know sharing knowledge, sharing ideas, uhm like as I told you if I create a tutorial about something you know I share it. If I can answer a question that somebody asks and if I have the answer, I reply" (Delma, Active member)

> "I love it when I see a question I know the answer to that comes on, and I save somebody else the time and answer quickly because I am online a lot. […] I have answered a few questions, I have welcomed a few people but to me that is peripheral, minor to what I could do or should do" (Hailey, Active member)

Last but not least, welcoming new members (as can be seen in the quote above by Hailey) and providing social support by responding to topics, in which other Webheads had shared their success stories or sadness, were other activities that were reported as contributions by active members. Such activities are similar to a support person's role, as discussed in the literature review (see Section 2.4.5.2):

> "Then I congratulated people couple of times on their success showing my respect for them, expressed my sadness when [a Webhead] passed away, which really struck me" (Vania, Active member)

Peripheral member contributions: Community members and promoters of the WiA

In general, peripheral members considered themselves to be consumers of the knowledge created within the community. This can be seen as the role of a community member as discussed in Section 2.4.5.2:

> "I just take from them. I mean they are sharing and somebody has to take what they are sharing" (Patrick, Peripheral member)

> "Now, I just receive information and I get involved if I have time if I am interested in" (Trella, Peripheral member)

Nevertheless, they also claimed that from time to time they would try to help and answer queries if they were knowledgeable enough in the topic of inquiry;

> "Occasionally, I will comment on something if I see someone is struggling with something and no one else has jumped in and if I feel like I have some information that I can provide then I do that" (Rebecca, peripheral member)

"If I see a subject heading where it looks like I could help someone, if I have any knowledge about that then I share it but I don't always share with the whole group. I sometimes just share in a private email" (Marilyn, peripheral member).

The analysis of the Yahoo! group history supported those claims. There were a number of help requests in which a number of peripheral members posted a message to answerer a query but had not posted any other messages within the nine months of data collection. Additionally, the interviewees, who were considered to be peripheral members, reported that they would respond to invitations to participate in surveys that are sent by other members, the present study being an example of such contribution:

"Most of the time you know if there was something for example completing a questionnaire or something like what you [the researcher] are doing, I think yes. [...] I think that you [a member] need to do that because you are part of the community" (Havva, Peripheral member)

"Well yeah I read the email and thought: 'Oh! I can take a survey, that's not a problem'" (Patrick, Peripheral member).

Last but not least, Rebecca (Peripheral member), who currently trains teachers in different parts of the world also considered that she contributed to the community by "making referrals to the community for the new members". Similarly, Vanesa (Peripheral member) "always tell people about the Webheads and what a positive community and what a significant change and impact they have had in my professional life", which suggests that both members were trying to promote the community and bring in new members.

To summarize, as we have seen throughout this section (4.2.5), contributions to the WiA community are made on a voluntary basis and labour is divided among all members, with some contributing more and some contributing less than others. In this sense, core members, who have the highest level of participation are considered to be leaders, coordinators and can be seen as the technology stewards of the community. Active members, on the other hand, though participating less than core members, provide help with member queries when they can, whereas peripheral members mainly remain silent and make use of the information shared within the community. Thus far (sections 4.2.1 to 4.2.5), through the use of Activity Theory (AT) and its components, I have described the activity system of the WiA community. The effects of this activity system on members' participation will be explored in the next section.

4.2.6.   Effect of the WiA activity system on members' participation

Overall, interviewees reported that the current activity system of the WiA created a positive atmosphere in the community, which resulted in: 1) trust among members; and 2) a sense of belonging to the community.

4.2.6.1. Trust

The positive atmosphere present in the WiA community seemed to make it "easy to communicate with people [other members]" (Havva, Peripheral member). As a result, Webheads felt "safe" (Amal, Havva), "secure" (Amal), "confident" (Sarah, Mona), "comfortable" (Patrick), "happier" (Vania), "welcomed" (Stefania), and "relieved" (Mona). This suggests that interviewees trusted the WiA community and their fellow members. Furthermore, this also seemed to create a virtuous circle in which members were motivated to share when they saw others sharing, which led other members to join and participate and subsequently continue the sharing within the community:

> "I love it! Because it's a way of having colleagues around the world but probably are doing the same as you are doing uhm and you learn from them. You share with them and they share with you their experiences" (Mary, Active member)

> "They [Webheads] are willing to share […] sometimes you join a list and you see that the motivation lowers down because they [the other list] don't share frequently or they [the other list] don't post information, so since I am a member they[Webheads] are always active, sending information and also helping people who are doing research" (Trella, Peripheral member)

Likewise, the continuous interactions in the WiA Yahoo! group and regular Learning2gether online gatherings support this finding (see Section 4.3.1).

In addition, the quote below from Sarah (Active member) suggests that the Webheads trust in the expertise of other members and direct their questions without hesitation:

> "Everybody else would post 'Help! I have got a problem with...' or 'I need...' and there is always somebody there who can answer and help and I really think that makes me confident enough to try the same things if I need to" (Sarah)

In support of the point above, within the Yahoo! group there were help requests which were directed by peripheral members and responded to by other Webheads (i.e. Thread 43 in Appendix 15, p. 274).

Additionally, Hailey reported that the "human connection" that she felt within the WiA community, which illustrates the benevolence of the community, was a key factor for why she preferred the WiA community over other communities that she belonged to:

155

> "…uhm one of the sites, my second favourite for learning is definitely a site where you cannot ask a silly question without getting furious replies from people who know better than you and 'why are you wasting this listservs time with stupid questions? Did not you read the directions? This is where you go for that' and Webheads do not reply like that. […] So, [in the Webheads] there is serious learning and there is the realization that we are humans" (Hailey, Active member)

Similarly, Julio stated that the norms available within the WiA were positive since they were "humane" and "take people into account as human beings". In addition, Amal highlighted that "nobody feels he wants to stop sharing because nobody interferes in other people's decisions", implying the integrity of the community.

4.2.6.2. Sense of belonging

As a result of the positive atmosphere within the WiA community, which motivates people to share and interact with each other, in time, members developed friendships (see Section 4.2.2), which can be considered to have contributed towards building a sense of belonging to the community. Amal (Active member) explained that "nobody feels like a stranger" in the WiA group and, for example, Havva (Peripheral member) expressed that she felt "a sense of belonging" to the community since her expectations of support and safety had been met. On a similar line, Julio (Active member) explained that he felt "this strong connection" with the community and considered the Webheads to be "like a family", even though he had not met many of them face-to-face. Additionally, when a fellow Webhead passed away, Vania "was really sad" and she expressed that the situation "really struck" her though she had never met that fellow member. Last but not least, in Emma's (Active member) case, she found that belonging to the WiA community "was a total psychotherapy" for her, since the Webheads were "extremely positive" and provided her with "a virtual staffroom with no [not discussing] administrative hassle" but more teaching related issues:

> "This was really difficult to get my head around at the beginning. I was like: 'Oh my god! Who are these people all so full of enthusiasm?'. Because I am British, it's not the norm for me but honestly it worked like psychotherapy for me" (Emma)

Apart from building feelings of trust and a sense of belonging to the WiA community, this positive atmosphere and virtuous circle, in which members sustained information sharing and interactions, resulted in the co-construction of knowledge, which is stored in community's public spaces (i.e. Yahoo! group). This knowledge can be considered to be the shared artefacts of the WiA community and will be explored as part of WiA's practice in the next section.

4.3. Webheads' Practice: Artefacts and Professional Development as a Webhead

As a result of member contributions to the WiA community, artefacts, that are directly or indirectly usable to members, emerge. In this section, the artefacts have been grouped according to their accessibility to the community members, resulting in the creation of two categories: within community artefacts (see Section 4.3.1); and outside community artefacts (Section 4.3.2). Additionally, at the end of this section Webheads' perceived professional development in using and integrating technology within their instruction will be examined (Section 4.3.3).

4.3.1. Within community artefacts

Within community artefacts have been identified as the knowledge and information that is readily accessible to the Webheads within the public spaces of the WiA community. These artefacts include the WiA Yahoo! group message history (see Section 4.3.1.1) and recordings of Learning2gether events (see Section 4.3.1.2).

4.3.1.1. *Yahoo! group message history*

Any Webhead, who is a registered member on the WiA platforms, is allowed to view and can post messages in the community's public spaces. As such, during the nine month collection of Yahoo! group messages the Webheads exchanged 566 messages (see Table 3.4 in section 3.5). These 566 messages were grouped into 190[37] message threads and the average length of a thread was 3 messages. The threads were categorized as: invitations (n = 66; 35 %); Learning2gether updates (n = 42; 22 %); requests for help (N = 20; 11 %); sharing resources (n = 34; 18 %); social messages (n = 21; 11 %); and miscellaneous (n = 7; 3 %) (see Appendix 14).

The 66 threads (35 %), which were categorized as invitations included member invitations to submit proposals (e.g. for a conference), to participate in events (e.g. webinars), to participate in surveys (i.e. the questionnaire in this study), and to collaborate (i.e. connecting classrooms via the internet). Parallel to the shared interests of the members, these invitations were technology related in most cases (examples of invitations are provided in Appendix 15). Message threads under the category of invitation generally remained as single messages unless Webheads responded to ask for more information about the invitation or to

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[37] In total, 205 message threads were collected from the Yahoo! group. However, it was later found that 15 threads were continuations of a previous thread, thus those threads were merged together resulting in the decrease of thread numbers to 190.

thank the sender and/ or confirm their participation in the event (i.e. Thread 5; see Appendix 15, p. 271).

When it comes to the Learning2gether threads, all of the messages (n = 42; 22 %) which were regularly sent to the Webheads' email addresses, were sent by Vance (Moderator/ core member) and included information on past Learning2gether events as well as the upcoming ones (more details on Learning2gether sessions will be provided in Section 4.3.1.2).

The help requests directed to the community (n = 20; 11 %) were mainly technology related (n = 19) and by the end of the day there was always at least one response posted in response to the question. The fastest response came to Annie's (Pseudo name; Peripheral member) question, which had been posted at 15:01[38]; the initial response was received at 15:14 less than quarter of an hour later (see Thread 43 in Appendix 15, p. 274). In this help request, after expressing her appreciation of what other members do in the community, Annie asked for advice on how to teach a lesson about the Internet. In the responses that followed, Annie was provided with a number of resources that might give her some answers.

The community benefits from the expertise of its members, not only by the responses received to queries, but also by the messages where members share their knowledge and information of resources that they find to be useful and worthy of sharing. Within the nine months, the Webheads shared resources (n = 34; 18 %), which included: articles (e.g. on MOOCs[39]); e-books that can be used for teaching English; recordings of events such as conference presentations; information on webpages/ software/ applications; excerpts from members' teaching practice using technology; and information on other communities that Webheads might be interested in (see Thread 23 -p. 277- and Thread 49 –p. 271- in Appendix 15). In general, these messages tended to invite feedback and responses from other members.

The Learning2gether updates, invitations, help requests, and resource sharing constituted a majority of the types of interactions among members and all of these can be seen as relating to the teaching and professional aspects of the Webheads in Action (WiA) community. Nevertheless, sharing information that has social content (n = 21; 11%) was not uncommon among Webheads. Webheads sent messages informing the community of their travel plans, in attempts to arrange Webhead gatherings in real life, in addition to their online

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[38] The time stamp of the email messages within the Yahoo! platform is that of the Yahoo! Headquarters and not the local time from where the message is sent. This helps in finding out the precise time difference between a question and the answer received to it.
[39] Massive Open Online Course (MOOC), as the name suggests, is a course of study made available over the Internet. without charge, to a very large number of people.

gatherings. Furthermore, Webheads sent messages celebrating each other's holidays such as Christmas (a holiday celebrated among Christians) and Eid (a holiday celebrated among Muslims). From time to time, Webheads also shared their feelings with other members, which included sensitive topics such as the death of a fellow Webhead (see Thread 82 and 147 in Appendix 15, p. 279).

4.3.1.2. Learning2gether

Learning2gether is the title given to the online synchronous meetings that Webheads regularly hold. As previously explained in Section 4.2.5, Vance (Moderator/ Core member) organizes the Learning2gether events and regularly updates the community about those events. In his updates, Vance generally sends summaries of past events as well as links to the recordings and informs members about the timing and content of upcoming events (see Thread 19 in Appendix 15, p. 273). In this sense, such reminders act like the newsletters of the community. The Learning2gether sessions are generally presented by the members of the WiA community but there are also sessions presented by non-WiA members from time to time. Vance explained that he would add "every event that comes on my radar" to the Learning2gether list, but he clarified that Learning2gether events presented by Webheads differ in the sense that they take place in an informal fashion which aims to involve all participants in collegial dialogue:

> "Learning2gether events are conducted in the style that we use, which is informal […] and if they make a presentation that's fine but we are not just sitting and listening to the presentation. We try to get people to talk about it with the presenter and we try to get into discussion with the presenter" (Vance)

In addition, Amal (Active member) reported that when she and Mary (Active member) informed the community of their EFL classroom collaboration project a few years ago, Vance individually contacted them and invited them to give a presentation to the community about what they had accomplished. This suggests that Vance not only organizes the events but also actively seeks presenters for the Learning2gether sessions and in line with the division of labour within the WiA community, members volunteer to present at such events. Likewise, the URL of the Learning2gether wiki page includes the term "volunteersneeded". Since the community follows a "ground up" approach, it is the volunteers who decide what to present about; parallel to the shared domain of the WiA, the presentations are always related to technology and teaching with technology (see Appendix 16).

During the interview, Vance acknowledged that, from time to time, he "can be a little discouraged […] because I don't have a lot of people volunteering" and added that during

summer and holiday times, activity in both Yahoo! group and Learning2gether lowers. Nevertheless, "we generally get a lot more activity […] as we are getting to the school year and especially as we come toward Electronic Village Online (EVO)", he highlighted. As such, during the nine months that the Yahoo! group interactions were observed, Learning2gether events took place regularly and Vance continuously sent updates to the community with the exception of during the Christmas and New Year holidays (see Appendix 16).

One important issue in relation to these synchronous Learning2gether events was the time of the day that they were hold. It is worthwhile to remember that the Webheads are from different countries around the world and there can be huge differences between the time of the Learning2gether session as GMT[40] and members' local time equivalent. This suggests that the events can be potentially taking place at a very late or early time of the day for some members:

> "I cannot join the sessions because it is very late, after midnight in […]" (Havva, peripheral member)

Additionally, the Learning2gether events were generally held on Sundays, which was a working day for some members (i.e. Amal who lives in Egypt where the public holidays are Friday and Saturday) or was a day dedicated to family (i.e. Cecilia). However, Vance, who is aware of this issue, explained that he is "trying to be flexible on the time" of those events and volunteers "are welcome to […] take another day or you can have anytime you want". As such, whilst most Learning2gether sessions were held on Sundays, there were occasions where the events were held on other days in the week (see Appendix 16). Furthermore, interviewees reported that they tried to participate in the sessions and when they cannot participate, they follow the recordings of the Learning2gether sessions:

> "I am not able to watch the live show […] Luckily, there are recordings that I can watch afterwards and often only comment" (Sally, Peripheral member)

> "I should say that most of the time, I need to watch the recordings" (Havva, Peripheral member)

Within the nine months that the WiA community interactions were stored, Vance sent recordings and/or reminders of 44 different Learning2gether sessions (see Appendix 16). It was observed that a number of Learning2gether sessions were related to the Electronic Village Online (EVO) (i.e. No: 11 and 40 in Appendix 16), which was considered to be the result of the

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[40] Greenwich Mean Time (GMT) is "used as the designated time denominator" for events within the WiA community (Kulavuz-Onal, 2013, p. 147).

overlap between the EVO and the WiA community (see Section 4.2.2.3). In Learning2gether events, participants discussed issues ranging from what tools they use in their teaching (No; 44), the difficulties of implementing CALL (No; 41), the use of iPads in language learning (No; 19, 20), ideas for flipped language classrooms (No; 16), and tips for mobile learning (No; 9), to the use of gamification strategies for language teaching/learning (No; 3).

Last but not least, the WiA members also experimented the use of different technologies in the learning2gether sessions. For example, in the Learning2gether session, which took place on November 19, 2013 (No; 37), Vance experimented with extending the 10-people participant limitation of using Google+ Hangouts by airing the session through YouTube and embedding the YouTube link to an Etherpad clone, which not only allowed the session to be transmitted to many users but also provided a method of interaction with the audience through text chat. A number of interviewees referred to events like this as having "F.U.N." standing for "frivolous unanticipated nonsense", which suggests Webheads enjoyed experimenting with different uses of technologies and reporting their experiences to the community (see also Section 4.3.1.1).

4.3.2. Outside community artefacts

Outside community artefacts have been identified as the knowledge and information that has been created by the Webheads, but, unlike within community artefacts, are not readily and directly accessible to the Webheads within the public spaces of the WiA community. Such artefacts include the Electronic Village Online (EVO) sessions that have been moderated by the Webheads.

EVO is an annual series of five-week online sessions that run from mid-January to mid-February and are offered free of charge to all English language teachers (both English as a second and/or foreign language) around the world. It is a project that has been developed by the Computer Assisted Language Learning - Interest Section (CALL-IS) of the TESOL organization. The organizers of the EVO sessions have taken advantage of current technologies in order to provide an alternative to the local/ international face-to-face conferences/ training sessions, which can be costly for teachers to travel to and participate in (Yeh et al., 2011). EVO sessions started in 2001 and have been running continuously with 10 to 12 different sessions being offered every year (Yeh et al., 2011). As explained in Section 4.2.1.1, the WiA community came into existence as a result of an EVO session and in time, Webheads "started infiltrating themselves into CALL-IS […] the sponsor of the EVO session" (Vance, Moderator; see Section 4.2.2.3). As such, a number of Webheads became part of the EVO moderation team, as well as offering EVO sessions themselves (see Appendix 11). While all of the EVO sessions offered by

the Webheads can be considered to be outside community artefacts, the focus in this section will be on the Becoming a Webhead (BaW) EVO session in particular since it the session which was most often referred to.

4.3.2.1. *Becoming a Webhead (BaW) EVO session*

 "Becoming a Webhead" is the name given to the EVO session, which was set up by Telma (Core member) and Delma (Active member) as an "off-shot/ sibling of the Webheads in Action" (Telma) in 2004. The full title of the session is: "Becoming a Webhead: A hands-on workshop on how to use Web communication tools for language teaching and learning". As the name suggests, the aim of this session was to "provide knowledge and hands-on experience of basic web communication tools" (Telma) and also to "introduce members to the Webheads in Action" (Delma), hence the reason "it was called 'Becoming a Webhead'". Telma explained that the session was the product of their (Telma and Delma) experiences within the WiA community and added that since the community, in its second year, "started going into more sophisticated stuff", they felt "there were colleagues […] who were interested in […] going to the basics". Therefore, they established the BaW session, which they considered to be similar to the first WiA EVO session given by Vance However, in line with constant changes in technology, Telma added that they "did not always have the same syllabus" and they "kept changing and adding tools".

The BaW EVO sessions ran for 10 successive years between 2004 and 2013 and the main contribution of these sessions to the WiA community was by bringing "in new people, new blood, new ideas, [and] refreshing] the community" (Mike, Core member), a factor which was considered to "have been very important in sustaining" (Mike) the community. Vance acknowledged this situation when he stated that "for 10 years they [Telma and Delma] kept bringing people into the fold". Likewise, as we have seen in Section 4.2.1.1 (see also Figure 4. 3), most of the interviewees were graduates of the BaW sessions in different years prior to joining the WiA community. There seemed to be two main reasons for why the BaW EVO sessions had been successful in bringing in new members to the community: 1) the sessions provided a transitional process in which potential new members could adapt to the WiA community; and 2) it provided participants the opportunity to practice and learn how to use the computer mediated communication (CMC) tools that the community utilizes for their interactions.

To begin with, Telma reported that for each year's BaW session, they had created a separate Yahoo! Group, since they "did not want to mix people", who had participated in the sessions in different years, to avoid confusion. In the sessions, potential Webheads had the

chance to learn both about each other and the moderators, who were already members of the community. In line with this, Cecilia (Core member) expressed that participating in the BaW session prior to joining the community provided her with "a smooth transition to the community". She considered that her participation made her feel more "comfortable" and "safer" when she joined the WiA community because "it's not just you were there [in the WiA community] and you don't know who you are talking to, you already have the reference of those people that were in the Becoming a Webhead session".

Secondly, the BaW sessions provided members with "hands on" (Telma) experience of using CMC tools such as forums, text-chat, video conferencing, and wikis, which were used by the WiA community for their interactions. Telma clarified that BaW was a "hands on" experience since participants "had to use these tools if they wanted to participate in what was going on" and added that they had participants who had never used some of the tools they taught about before and that "for some it was complicated, it was confusing, [and] it was overwhelming". However, in cases where participants experienced difficulties with technology, Telma and her team were "always ready to help them" and "led the person on a step-by-step fashion" in solving their problems. In line with Telma's explanations, Mary (Active member) reported that her participation in the BaW session was "a real opening for her career" and she had "never imagined about […] all the tools available that we learned in" the BaW session. In this sense, it can be concluded that BaW participants both learned about and practiced the use of CMC tools and when "they got into the Webheads community, they had the glossary, they had the lexicon to communicate" (Delma, Active member).

Telma explained that, at the end of the BaW sessions, participants "became a Webhead" and they "joined Webhead in Action" but "not as many as we would have liked", she added. It is worthwhile remembering, that joining the WiA community is a voluntary act and participating in an EVO session "does not oblige you to become part of the Webheads. You join if you wish" (Betty, Active member). This suggested that it was those participants who were committed to the community that joined the WiA community in the end.

Interestingly, after 10 years of running the BaW EVO sessions, Telma and Delma informed the WiA community that "it was time for fresh blood to come in" and recommended that a new team take over their place. This resulted in the creation of a new EVO session entitled ICT4ELT, which is similar to the BaW sessions. The moderation team of the ICT4ELT session consist of "disciples […] who are trained by Telma and Delma" (Cecilia, Core member) some of whom were identified as Julio, Amal, and Mary (Active members).

To summarize, it can be concluded that the BaW EVO session served as an induction for potential members who might later join the WiA community. This induction included two important aspects, one of which was technology (i.e. training in the use of CMC tools to be able to communicate effectively with other members) and the other was social (i.e. meeting current Webheads). However, after a decade, the BaW sessions stopped running and were replaced by a new EVO session titled ICT4ELT. Having looked into the artefacts (within and outside community), which are the result of interaction, collaboration, and co-construction of knowledge between the Webheads, we will now analyse the perceived effects of community participation on Webheads' professional development.

4.3.3. Learning about the use of technology for EFL instruction

In this section, the perceived effects of members' participation on their skills and knowledge of integrating technology into their instruction will be explored. It is worthwhile to remember that the Webheads are either ESL or EFL teachers. However, since this study focused on EFL teachers' professional development, the data that was used to conduct the analysis reported in this section was limited to that of the Webheads who reported being EFL teachers.

As we have seen in Section 4.2.1.1 (see Table 4. 1), there were 44[41] participants, who reported that they worked as EFL teachers. The participants were asked to express the extent to which they agreed with statements that aimed to measure their perceived TPACK knowledge. A seven-point Likert scale was used in which "1" represented strong disagreement and "7" strong agreement. The descriptive statistics carried out on the Webheads' responses showed that their perceived technological pedagogical and content knowledge (TPACK) levels were high (see Table 4. 3). The mean score for technology knowledge (TK) was the highest (*Mn* = 6.64) and it decreased slightly in more complex TPACK components; technological pedagogy knowledge (*Mn* = 6.26), technological content knowledge (*Mn* = 6.24), and technological pedagogical content knowledge (*Mn* = 6.05)

The Webheads considered their participation to be helping them to "grow professionally" (Mary, Active member) and there were three different means identified, through which they had developed their skills and knowledge of using technology: 1) by experimenting in the use of different technologies for teaching purposes; 2) by asking

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[41] Whilst there were 46 EFL teachers, two of the participants seemed to have provided mechanical responses (i.e. selecting the same anchor from the Likert scale in for all items within multiple sections), suggesting that they did not actually read the statements. Therefore those two responses were omitted from the analysis resulting in an analysis consisting of 44 participants.

questions related to the use of specific technologies to other community members and receiving responses; and 3) by following what others shared in the community.

To begin with, as we have seen in Section 4.2.6.1, the interview data supported the idea that the Webheads trusted each other, which in return seemed to contribute towards the creation of a virtuous circle in which the WiA members were motivated to both experiment and share their knowledge, when they saw others doing the same:

> "the more we see that people are motivated and actively participating, […] the more it makes us feel like participating and carrying on and going to extremes" (Telma, Core member).

Table 4. 3. Perceived TPACK levels of Webheads who are EFL teachers

	N	Mean	Min.	Max.	Range	Std. Deviation	Variance
Technology Knowledge (TK)	44	6.64	4.09	7.00	2.91	.676	.457
Technological Pedagogical Knowledge (TPK)	44	6.26	2.00	7.00	5.00	1.03	1.058
Technological Content Knowledge (TCK)	44	6.24	1.86	7.00	5.14	1.16	1.339
Technological pedagogical and content knowledge (TPACK)	44	6.05	2.29	7.00	4.71	1.19	1.426

In line with that, the trust within the community encouraged members to experiment in different uses of technology and "take risks with no problems of failure" (Cecilia, Core member). Cecilia added that "there is no such a thing of failure for us". This supports Betty's (Active member) statement that Webheads "are mostly […] geared at exploring the technological processes". Likewise, as we have seen in the analysis of the Learning2gether events (see Section 4.3.1.2), the community did, in fact, experiment in the use of Google+ Hangouts with the aim of overcoming the 10 participant limitation of the synchronous sessions.

Secondly, Webheads also learned about technology through the questions that they asked to the community. The norm of providing support to other members (see Section 4.2.4.1) and the geographical diversity of the community (members in different time zones) was influential in members' receiving timely responses to their technology queries (see Section 4.3.1.1). Thirdly, members who had peripheral participation seemed to learn from the

community interactions by following the knowledge created and shared within the community:

> "…sometimes a new topic, a new tools is being introduced or someone wants to learn how they can use a specific tool […] So by just seeing what are being raised and the responses that other Webheads give… So I get some ideas" (Havva, Peripheral member)

At this point, it is timely to revisit the notion of zone of proximal development (ZPD) which supports the idea that providing they receive appropriate scaffolding, less able learners can learn from their more able peers. This highlights the importance of collaboration and co-construction of knowledge in the process of learning. The application of ZPD to the communities of practice (CoP) framework infers that peripheral members, who, in theory, do not know much about the practice of the community, would become more knowledgeable in time as they observe and begin to actively participating in community activities; a process that has been defined as legitimate peripheral participation (see Section 2.4.3). In order to test this hypothesis, inferential statistics were run to find out whether there were any differences between the perceived TPACK levels of members with different levels of participation. A normality test was run on the data to inform the decision as to whether parametric or non-parametric statistical tests should be used. The results of both Kolmogorov-Smirnov ($p < 0.001$) and Shapiro-Wilk ($p < 0.001$) tests were significant, suggesting that the data was not normally distributed (see Table 4. 4). Therefore, non-parametric tests were used (Field, 2009). The Kruskal-Wallis test was run and, with the exception of TK, a significant difference was found between members' level of participation and their perceived TCK, TPK, and TPACK scores respectively ($H(2) = 6.54$, 7.99, and 8.59 respectively; see Table 4. 5). The Jonckheere-Terpstra test revealed a significant trend in the data: the more frequently a Webhead interacted with the community the higher their scores were in TCK ($J = 314.50$, $z = 2.42$, $r = .37$), TPK ($J = 363.00$, $z = 2.70$, $r = .41$), and TPACK ($J = 370.00$, $z = 2.88$, $r = .43$) (see Table 4.5).

Table 4. 4. Test of normality of the data

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
TK	.314	44	.000	.587	44	.000
TCK	.256	44	.000	.686	44	.000
TPK	.236	44	.000	.717	44	.000
TPACK	.213	44	.000	.766	44	.000

Table 4. 5. Kruskal-Wallis and Jonckheere-Terpstra test results for comparing TK, TCK, TPK, and TPACK scores with participants' level of participation

Participation Level		N	Mean Rank			
			TK	TCK	TPK	TPACK
Peripheral		27	20.46	18.69	18.22	18.24
Active		14	24.07	28.86	29.21	28.14
Core		3	33.50	27.17	29.67	34.50
	Total	**44**				

Kruskal Wallis Test Statistics				
Chi-Square	3.55	6.54	7.99	8.59
df	2	2	2	2
Asymp. Sig.	.170	.038*	.018*	.014*

Jonckheere-Terpstra Test Statistics				
Observed J-T Statistic	314.50	350.00	363.00	370.00
Mean J-T Statistic	250.50	250.50	250.50	250.50
Standard Deviation of J-T Statistic	39.42	41.13	41.60	41.49
Standard J-T Statistic	1.62	2.42	2.70	2.88
Asymp. Sig. (2-tailed)	.104	.016*	.007*	.004*

"*****" Result is significant at a confidence interval of 95%

The fact that there was no significant difference between the members' perceived TK knowledge and Webheads' level of participation is not surprising. This is because regardless of their level of participation all of Webheads reported that, through their participation in BaW and/ or the community, they had learned how to operate/use certain tools and technologies:

> "I learned the blogging […] I learned some things with Google and Google docs" (Sarah, Peripheral member)

> "…how to use blogs, how to use Skype, how to use Yahoo groups, I don't know, uhm, how to use wikis […] lots of tools like these ones. Google drive, google docs… You see, I have learned a lot. I mean all I know about technology" (Mary, Active member)

> "I can give you tons of examples like blogging, setting up a blog, uhm, podcasting […] How to work with audio using Audacity for example, it's something you know that I learned with the Webheads" (Cecilia, Core member)

The technologies that were reported by the interviewees were grouped under six categories: 1) web tools; 2) audio tools; 3) video tools; 4) computer mediated communication tools; 5) office applications; and 6) data saving tools (see Table 4. 6). The technologies that were most frequently mentioned by Webheads were blogs, wikis, Blackboard Collaborate (Elluminate), and the Yahoo! group.

Table 4. 6. Technology Knowledge (TK) reported by the Webheads

Category	Tools
Web	Blog, Dreamweaver, Flickr, Makebeliefscomix.com, MOOCs, Moodle, SurveyMonkey.com, Wiki,
Audio	Audacity, Podcast, Voicethread, Voxopop,
Video	Camtasia studio, Screencast-o-matic, Snagit, Touchcast,
Computer Mediated Communication (CMC)	Anymeeting.com, Blackboard Collaborate (Elluminate), Diigo, Google Hangouts, Twitter, Yahoo groups,
Office Applications	Google Docs, Prezi, Skype,
Data saving	Google Drive,

The significance of test results, with regards to the comparison of perceived TPK, TCK, and TPACK scores between members with different levels of participation, suggested that there was a positive relationship between Webheads' participation levels in the community and their perceived knowledge of technology integration in their instruction. This finding supports two possible hypotheses: 1) since members, grouped as active and core, already had higher knowledge and skills in integrating technology, they became more frequent participants in the community: and 2) members became more frequent participants as they learned through their participation and interactions within the community. In line with the notions of ZPD and legitimate peripheral participation, the interview data supported the second hypothesis. To begin with, as we have seen in Section 4.2.3, peripheral members of the community preferred to receive a daily digest of community interactions while active and core members preferred to receive each message as an email. As such, peripheral members generally skimmed through daily digests and read through the ones they found interesting (i.e. see Trella's statement on p. 137). On the other hand, active and core members preferred reading through all community interactions (i.e. see Hailey's statement on p. 138). This suggested that, while the limited time peripheral members spent within the community was enough to get updated and learn about new tools (i.e. technology knowledge), it might not have been sufficient to learn in more detail about the process of integrating technology:

> "No, I would not say that because I developed my skills mainly by myself […] but in terms of keeping me updated and curious about some tools, yes I would say that" (Trella, peripheral member)

> "I don't know whether my pedagogy has increased" (Sally, Peripheral member)

"I cannot think of something that I actually applied. At the moment I cannot remember[42]" (Havva, Peripheral member)

On the other hand, in general, members, who were considered to be active and core members, related their technology professional development to the WiA community:

"Well before joining Webheads it was like zero compared to now. […] The only technology I know was the Google search and that's it" (Amal, Active member)

"but I think not knowing anything about technology before I became a Webhead means that they are very instrumental […] Everything I have learned has come from the Webheads" Sarah (Active member)

"I would not say 100 % but 90%. 90% of what I became and what I know […] the skills that I developed in terms of digital competencies are related to the Webheads" (Cecilia, Core member)

The above quotes support the existence of legitimate peripheral participation (LPP; Lave & Wenger, 1991) within the WiA community, in the sense that when they joined the community, those members (i.e. Cecilia, Core member) were initially peripheral participants and, as we have seen throughout Section 4.2, in time through their participation within the community they were exposed to the workings of the community and modelled behaviour. As a result, as they learned from the community and the artefacts available to them, those members, who were initially observers, moved from the periphery towards the centre and became more active participants in the knowledge building process (see Section 4.2.5).

Furthermore, the technology professional development, as reported by the Webheads, was found to suit the critical approach of integrating technology as discussed in the literature review (see Section 2.2):

"We looked at ways of using technology but only if it's the right tool for the job. I think teachers sometimes don't use their critical thinking skills and they jump on technology when, really, the whiteboard or the paper and pencil could do the job better and I think that's one of the good things about the Webheads. They don't push technology; they push the right tool for the right job. […] I mean there is no point in having a fad and saying: 'Oh, I think I will use this technology'. If it is not necessary and if it does not do the job or if I don't need it and I can use another way then I don't see the point in using the technology" (Sarah, Active member)

The examples that Webheads provided as their teaching practice showed their TCK, TPK, and TPACK knowledge. For example, Betty (Active member) reported the use of blogs for writing

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[42] The fact that Havva could not remember anything that she applied in her teaching, with regards to the use of technology, does not mean that she had not learned anything from the Webheads. However, it suggests that, either she did not learn many things, or what she learned was not significant for her.

activities and the use of Voicethread for speaking activities. This demonstrates Betty's awareness of how to use different technologies for teaching different language skills and can be considered as her technological content knowledge (TCK). Likewise, Mandy's (Active member) use of wikis to do collaborative writing activities illustrates her TCK.

It can be understood from Vania's (Active member) statement below that she has adapted the use of technology in her teaching and extended the teaching process to outside the classroom, which can be considered as a manifestation of her technological pedagogical knowledge (TPK):

> "I do blended learning […] Some of my sessions are… we do them distance. So I have face to face classes and I blend them with online interactive learning in the Moodle" (Vania)

Similarly, Delma (Active member), who through the use of technology aimed to give students autonomy and a choice in her teaching and engage them more actively in the teaching/ learning process, can be considered to possess TPK:

> "You know I don't force people to take responsibility, I say 'You have this, make your own plan' […] I give them a couple of applications for example and it's like you select the one you want but you have to do it and embed it in the wiki or the blog'. They can use a blog; they can use a wiki for their portfolios. So, they have choice you know. Like they have three activities, from these three activities you have to select one" (Delma)

Cecilia's (Core member) application of the "gamification" strategy into her classes through the use of mobile technologies can also be seen as a manifestation of her TPK:

> "We communicate all the time beyond the classroom. So sometimes I have challenges for them. I am now trying out gamification using WhatsApp[43]. So if the group uhm... I give them challenges. If the group can achieve those challenges then they get like badges and if the group achieves a certain number of badges for example uhm I bring a surprise to class like not a prize of physical one but like for example having breakfast together and things like that" (Cecilia)

The way Webheads used technology in the language teaching process also supported the idea that they possessed technological pedagogical and content knowledge (TPACK). For example, Telma (Core member) reported that through the use of technology, she arranged guest speakers to visit her English classes and encouraged her students to practice speaking,

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[43] WhatsApp is an instant messaging app for smartphones that operates under a subscription business model.

listening, and writing in English in a real context. She also seemed to have taken into account her students' ages and learning needs in this process, all of which demonstrate Telma's TPACK:

> I planned a chat between one teacher, one Webhead […] and my classes, so there were three guests speakers […] I prepared my students […] I said […] 'if you were to interview one of them what questions would you ask?' so this was..[…] They came up with several questions and then I got 12 of those questions and planned to have four students asking three questions each during that chat […] We had two lessons about time zones […] and I said: 'Look you know we are here in the morning and it's night time, other people are sleeping in the world' and so on and I gave them maps on the Internet that showed the day and night and so on and they understood. So when they interviewed Mike one of the questions […] was 'What time is it in Australia?' you know and then he said 'Ah here it is...' in very simple English okay. Because they were second year English students, anyway at the end we recorded the chat, at the end of the chat they wanted to listen to the chat again and I said 'Now you are going to write a summary of the basic things that teacher Mike said. So they write a little bit about Mike, a short text […] They were just going crazy, they behaved wonderfully, they were very comfortable and so on, it was amazing really" (Telma)

Another example supporting the facilitation of TPACK within the WiA community is Raine's (Active member) project titled "What's in a name?", which was an online collaboration between Raine's and another Webhead's students. Raine considered that through the project her students developed not only their language skills but also "intercultural understanding and awareness":

> "I had a project with An […] We carried out a project together which we called 'What's in a name?'. So through technology, her students and my students got to know how in these two different countries parents came to choose the names of their kids" (Raine)

One last example to be given is Mary's (Active member) use of a website titled "Switchzoo". Through the example provided below, Mary showed her awareness of how technology can be used to support the teaching of the simple present tense and vocabulary:

> "Switchzoo is a website about animals, their habitats and other stuff. There is one special link to create 'crazy animals'. My students love it. As there is one unit about animals in our course book, I always use this site as "wrap up". I teach them how to use the site and how to create a crazy animal. The grammar taught here is simple present; so students have to create their animal and write about it. As it is an invented animal, all is crazy and used in the simple present. I use it with second year students" (Mary).

To summarize, Webheads participation in the WiA seemed led to perceived TK development, regardless of their level of participation. However, there were significant difference between

members' level of community participation and their perceived TCK, TPK, and TPACK scores, respectively, which suggested a positive relationship between TPACK scores and level of participation. The interview data supported the hypothesis that the difference in perceived TPACK of Webheads might be due to members' level of interaction and co-construction of knowledge within the community.

4.4. Summary

In this chapter, the activity system of the Webheads in Action community has been introduced through the use of the Activity Theory (AT), which provided a well-structured framework and allowed the presentation of the data collected from multiple sources in a meaningful way. We have seen that Webheads are language teachers scattered around the world, who come together in this online community to explore and learn more about the educational uses of technology. We have also seen that the community utilized a number of synchronous (i.e. Google+ Hangouts in the Air) and a synchronous platforms (i.e. WiA Yahoo! group) to enable their interactions. In addition, a number of norms (i.e. providing support, respecting each other, and avoiding spamming) have been identified, which guide their interactions. Through their interactions members have developed friendships, which resulted in them meeting each other in real life face-to-face settings. Since members' level of commitment to and participation in the community varied, it was not surprising that their level of contribution to the community also varied and it was found that core and active members contributed more to community activities. Within this activity system, the Webheads' interactions resulted in artefacts, which were directly and indirectly usable by the members. Parallel to the shared interest of Webheads, it was found that those artefacts were practice oriented and were mainly related to technology and education. There were, however, interactions that were considered to have social content and which supported the idea that Webheads cared for each other's feelings. While the within community artefacts (Yahoo! group messages and Learning2gether sessions) seemed to contribute to Webheads' professional development, the outside community artefacts seemed to serve the community as a whole by bringing new members to the community on an ongoing basis. Finally, a difference was found between different levels of participation and Webheads' perceived professional development, which seemed to result from the limited amount of interactions by the peripheral members within the community. These results will now be discussed in relation to the literature in the next chapter.

Chapter 5: Discussion

5.1. Overview

This chapter aims to discuss the findings of the present study in relation to the literature and the research questions, which were;

- RQ1: Can the Webheads in Action (WiA) group still be considered to be an online community of practice (OCoP)?
- RQ2: Does participation in the WiA group lead to EFL teachers' perceived technology professional development?
- RQ3: What are the reported factors that affect member participation in the WiA group?

Initially, whether the WiA group still represents the characteristics of an OCoP, or not, is examined (Section 5.2 in relation to RQ1). Once, it has been established that WiA group can still be considered to be an OCoP, the extent to which members of the WiA, who are EFL teachers, perceive to have developed their skills of integrating technology into their teaching is discussed (Section 5.3 in relation to RQ2). After establishing that an OCoP approach can be an alternative approach to technology professional development (TPD), the discussion shifts to the factors affecting member participation in OCoPs in the final section (Section 5.4 in relation to RQ3). There were two overarching themes that were identified to have positively contributed towards members' participation and the success of the WiA community: 1) a sense of community and belonging, which was achieved through various means such as an inclusive community environment; and 2) the dynamism that is inherent in the WiA community, which manifested itself through various means such as new topics that kept members interested. In line with this, a dynamic model of the WiA community, which summarizes the results of the study, is provided below in Figure 5.1.

COMMUNITY:

CREATION OF A SENSE OF BELONGING TO THE WEBHEADS IN ACTION COMMUNITY

All members trying to respond to queries based on their expertisee

Moderation, Leadership, and technology stewarding

Webhead Roles

members contributing to the community at different levels depending on their level of participation

SHARED DOMAIN

Learning about educational uses of technology

Webheads:

members of this diverse community are scattered around the world but brought together by their shared interest

Webhead Space(s)

CMC tools that are easy to use and intertwined in members' lives (i.e. Email, Skype)

Interactions

Lead to

PRACTICE

Artefacts within community

Message History

providing an archive of resources to the knowledge created by members' interactions (including recordings of Learning2gether events)

Learning2gether

Synchronous gatherings where members develop their practice through engaging in collegial dialogue

PRACTICE:
Artefacts outside the community

Electronic Village Online (EVO)

Becoming a Webhead

Webhead Culture

implicit norms guiding interactions within the community

Support other members if you can

Show politeness and respect to other members

Avoid spamming, religious and/ or political discussions

Resulting in

Members' perceived professional development through their participation in the community

Members, seeing value in their participation, promote the community to their colleagues, thus contributing to the sustainment of the community

External activities contribute to the community by bringing in new members

The circles represent the fundamental elements of the CoP framework,

The rectangles represent the themes generated from the data, and

The arrows represent the relationships between the themes.

Figure 5. 1. A dynamic model of the Webheads in Action (WiA) Community

5.2. Webheads in Action as an online community of practice (OCoP)

As discussed in the literature review (see Section 2.4), there are three fundamental characteristics that differentiate a group of people from a CoP, which have been described as: *shared domain, community, and practice* (Wenger et al., 2002; Wenger et al., 2009). The extent to which the WiA group represents these characteristics will be discussed in this section. The first characteristic to be discussed will be the *shared domain*, because once it can be established that members of the WiA community have something in common, it is then worthwhile to explore the *community's* interactions around that *shared domain*. Finally, from this, it is possible to examine what the WiA's *practice* (the product of the community's interactions) entails.

5.2.1. Shared Domain

The *shared domain* is the first dimension of CoP framework and is what brings individuals together and guides their learning within a community (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009). As we have seen in Section 4.2.1.1, what all interviewees had in common, as well as their motivation for joining the WiA group, was their interest in learning about the educational uses of technology. Likewise, in the Yahoo!, Facebook, and Google+ definitions of the WiA group, integrating technology into the teaching/ learning process through constructivist strategies was established as a legitimate focus for WiA group's collective learning (WiA Facebook Group, n.d.; WiA Google + Community, n.d.; WiA Yahoo! Group, n.d.).

The above definition suggests that the Webheads' shared to domain is technology integration into education in general; however, it is possible to narrow down the shared domain of the WiA group even further, to learning about the integration of technology into the language teaching/learning process. There are various reasons for this claim; to begin with most of the members of the WiA community are language teachers (see Section 4.2.1.1). In line with that, it has previously been reported that the WiA group stemmed from a group of language teachers called Writing for Webheads (C. M. Johnson, 2005). Moreover, when we consider the process of member recruitment to the WiA community, namely the Becoming a Webhead (BaW) Electronic Village Online (EVO) session, it can be seen through the full title of the session (see Section 4.3.2.1) that the target audience for the BaW sessions were language teachers. It is also worth reiterating that the EVO sessions are part of the Teachers of English to Speakers of Other Languages (TESOL) organization (see Section 4.3.2), which suggests that the sessions were advertised within the circles of the TESOL organization to language teachers worldwide. Furthermore, the language teachers, who are already members of the WiA, take initiatives and promote the community in their networks among their colleagues (see Section

4.2.5.1). It can, therefore, be inferred that these processes, through which new members are recruited to the community, attract a population of language teachers to the WiA group, which in turn supports the claim that the shared domain of the community is: learning about technology integration into the language teaching/ learning process. Now, member interactions around this shared domain will be discussed in the following section.

5.2.2. Community

It has been stated that putting a group of people in one place (in real life or virtual space) does not necessarily constitute a CoP (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009). Further, mutual engagement has been noted as an important aspect of CoPs (Davies, 2005; Wenger, 1998; Wenger et al., 2002). Mutual engagement has been described as the practice of members actively engaging with each other in the negotiation of meaning (Wenger, 1998).

References to the WiA group's mutual engagement can be observed in the Yahoo!, Google+, and Facebook group descriptions, which state that members are brought together online "to help each other learn" in the group (WiA Facebook Group, n.d.; WiA Google + Community, n.d.; WiA Yahoo! Group, n.d.). Additionally, the number of unique individuals who posted a message to the WiA Yahoo! Group[44] within each three-month period ranged between 40 and 59 (see Table 3.4 in Section 3.5). During the nine months that community interactions were collated, the Webheads had exchanged over 550 messages in which they provided information/ updates, asked questions and received responses, and/or shared emotions with other members (see Section 4.3.1.1). This suggested that the community interacted regularly; a factor which is considered to be an important element for building mutual engagement (Wenger-Trayner & Wenger-Trayner, 2015). Furthermore, members of the community met weekly in the Learning2gether synchronous online sessions (see Section 4.3.1.2). Those Learning2gether sessions provided further opportunity for collegial dialogue and co-construction of knowledge, since as Vance (Moderator/ Core member) explained "we are not just sitting and listening to the presentation, we try to get people to talk about it with the presenter and we try to get into discussion with the presenter". These aspects of the WiA community signal the presence of mutual engagement within the group.

Notably, although an average of 50 unique individuals posting within each three-month period, this number demonstrates that not all of the registered members of the WiA

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[44] The discussion is based around the WiA Yahoo! Group, since it is the most frequently used WiA platform and has been considered to be the main channel of communication among WiA members (see Sections 3.4.3.1 and 4.2.3).

community post to the Yahoo! group. In fact, if *all* members were to actively participate in conversations, the community would implode (Wenger et al., 2009). Wenger et al. (2009) argue that in a such a case the frequency of sent messages would generate too much traffic within community that members would not be able to follow and keep up with interactions and developments. In the present study, active and core members generally shared information with other community members and participated in discussions by asking or answering questions. In contrast, the peripheral members seemed to mainly remain silent and followed community interactions with infrequent participation in discussions, for example only asking questions or answering queries that relate to their skills and expertise (see Section 4.2.5.1). In addition, it has been stated that a critical mass of members is necessary for an OCoP to function properly (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009). However, the number of members that constitutes a critical mass has not been clearly defined within the literature. Nevertheless, the fact that no requests were left unanswered, and the continuous activity (both exchanging messages and Learning2gether sessions) suggested that the necessary critical mass and mutual engagement had been achieved in the WiA group.

5.2.3. Practice

Practice is, in essence, the result of mutual engagement around the shared domain (Davies, 2005; Wenger, 1998; Wenger et al., 2002; Wenger et al., 2009). It is worth clarifying that it is not WiA members' actual teaching practice that is being discussed as *practice* here, but the way in which the community interactions exemplify a shared repertoire. The former will be discussed in detail later in Section 5.3 (with regards to the second research question). A CoP's *practice* (shared repertoire) includes words, stories, gestures, and certain ways of doing things that have become part of the community and can be considered to be the artefacts of the community (Wenger 1998). As discussed in the sections above, the WiA group members' shared interest in learning about educational uses of technology in language teaching is what has brought them together. This provides them with an incentive to participate and interact with each other, which, in return, enables them to co-construct knowledge that is parallel to their shared interest, i.e. the WiA's *practice.*

This practice, the history of the WiA community and the knowledge it has developed over time, is embodied within the WiA Yahoo! group and the Learning2gether archives. The reader is reminded that the Facebook and Google+ WiA groups and the Becoming a Webhead (BaW) EVO sessions have not been included here. This is because, within the Facebook and Google+ WiA groups, there is generally only one way communication from Vance (Moderator/ Core member), which does not involve interactions. In addition, the BaW EVO sessions

constituted outside community artefacts, which contributed to the community overall, but were not directly[45] available to current WiA members (see Section 4.3).

The WiA Yahoo! group can be seen as the main knowledge repository of the community, since a majority of community interactions take place there. The analysis of the message history within the WiA Yahoo! Group revealed that: members shared information on new technologies and sampled uses of those technologies; posted their questions relating to technology and received answers to those; and informed each other of online events relating to their shared domain (see Section 4.3.1.1). All of this knowledge and information is automatically archived and stored on the group webpage that is accessible to members. Moreover, the Yahoo! group webpage allows members to do a keyword search of the message archive, which can make it easier for members to locate and find a particular piece of information. In the Learning2gether events, members of the WiA group meet synchronously to engage in "informal learning" (Vance, Core member) and co-construct new knowledge by: discussing topics relating to their shared interest (e.g. Learning2gether session (No: 41) on the obstacles on implementing CALL in Iranian EFL classes, see Appendix 16); present sample uses of technology (i.e. Learning2gether sessions (No: 9, 30) on using mobile technologies for language teaching and online teaching respectively, see Appendix 16); and experiment with different uses of new technology tools (i.e. Vance's Learning2gether session (No: 18) where he embedded the live Google+ Hangout session to an Etherpad clone allowing not only the transmission of the session to many users but also providing a method of interaction with the audience through text chat; thus, overcoming the 10 person limitation of having Google+ Hangout sessions, see Appendix 16). Similar to the Yahoo! group message history, the Learning2gether sessions are recorded, archived, and available for members to listen to and/or watch at a later time (see Section 4.3.1.2). In short, these examples suggest that Webheads mutual engagement (*community*) resulted in co-construction of knowledge, which can be considered to be the WiA's *practice*, which in turn is guided by the *shared domain*.

5.2.4. Summary

In response to RQ1, the present study has provided evidence to suggest that in its 13th year (as of 2015), the WiA group represents the three fundamental features of a CoP, thus, can still be considered to be an online community of practice (OCoP), which is in the sustaining/ maturing

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[45] It is acknowledged that the BaW EVO sessions are publicly available to anyone. However, if WiA members want to access information available within the BaW EVO group they would need to visit or register to the Yahoo! group(s) created for each year's BaW EVO session (see http://www.digibridge.net/teresadeca/webheads/wia-index2.htm)

stage of an OCoP's life cycle, as suggested by Lai et al. (2006). The first feature that was explored was *shared domain*, which was identified as learning about the integration of technology into the language teaching process. The second feature was the *community* aspect and the analysis of community interactions revealed that the Webheads were mutually engaged in their communications and interacted within the group. The final feature was *practice* and the analysis of the community artefacts demonstrated that members' *community* interactions around the *shared domain* resulted in the production of knowledge, which is accessible to group members and constituted the Webheads' *practice*. Having established that WiA can be considered to be an OCoP, the discussion will now be centred around whether EFL teachers' participation in the WiA OCoP led to members' perceived technology professional development in the following section.

5.3.   Professional development as a Webhead

The results of the present study suggested that the Webheads perceived to have developed a number of skills and knowledge in relation to technology and its integration into the teaching/ learning process (see Section 4.3.3). All Webheads, including peripheral members (who generally observed other members' interactions), active members (who participated and interacted with other members of the community), and core members (who generally helped to organize community activities as well as supported other members), reported to have learned about the use/ operation of a variety of technology tools such as how to use a wiki, blog, and Blackboard Collaborate (Elluminate) from the WiA community. This suggested that the Webheads had developed their technology knowledge (TK) out of their participation. This finding is in line with previous studies which have investigated teachers' technology professional development (TPD) through community based approaches and found that community members developed similar operational skills with regards to the use of technology tools (Guzey & Roehrig, 2009; Kulavuz-Onal, 2013; Pachler et al., 2010; Scott & Scott, 2010; Vavasseur & MacGregor, 2008; Zygouris- Coe & Swan, 2010). Learning about the use of wikis and blogs were the most commonly reported TK by Webheads in this study, which is found to be similar to the findings of Kulavuz-Onal (2013), who also investigated the WiA community.

In addition, the Webheads' responses suggested that they had developed an awareness of how different technologies can be used to teach different language skills which can be considered to be technological content knowledge (TCK). Furthermore, examples of how Webheads adapted technology and tried new pedagogical approaches constituted evidence of technological pedagogical knowledge (TPK). Finally, the teaching practices that Webheads reported to have carried out (e.g. the use of synchronous video chat to allow

language exchanges with a native speaker for meaningful and authentic use of English and development of listening and speaking skills) seemed to include the use of technology in pedagogically sound ways, which provided opportunities for learners to practice English and better understand the content. This can, therefore, be considered as technological pedagogical and content knowledge (TPACK; see Section 4.3.3). These findings suggested that TPACK is mediated within the WiA community which, again, is in line with findings of Kulavuz-Onal (2013). Nevertheless, this finding is different from the findings of previous studies, which have investigated TPD through community based approaches (Guzey & Roehrig, 2009; Pachler et al., 2010; Scott & Scott, 2010; Zygouris- Coe & Swan, 2010). Within such studies, teachers' reported TPD generally remained at the level of TK, with a few exceptions where TPK and TCK seemed to be facilitated in the communities that were examined (Guzey & Roehrig, 2009; Pachler et al., 2010[46]; Vavasseur & MacGregor, 2008).

The studies referred to above were guided by the CoP theory. However, the authors of those studies did not specify how the community(ies) they investigated fit the criteria of a CoP. Therefore, there is a possibility that those communities were not, in fact, communities of practice, which might in turn explain the difference in findings between the present study and those referenced above. For example, the Florida Online Reading Professional Development (FOR-PD) community investigated by Zygouris- Coe and Swan (2010) was a 14-week long free training programme for teachers. Thus, rather than a community of practice, it resembled a community of learners who were brought together for learning and who generally dispersed when the learning objective was achieved (i.e. upon completion of training). However, a community of practice is "more than a community of learners but it is a community that learns" (Schlager et al., 2002, p. 131), which suggests that members learn through their interactions with each other and develop knowledge (a practice) in the community. In line with this quote, as we have seen in Section 4.3.3, members of the WiA group learned together through the Learning2gether synchronous online sessions in which they experimented with technology or reported their experiences of the use of different technologies to other members, and engaged in collegial dialogue. They were also engaged with and interacted in the Yahoo! group where they asked questions, received answers, shared their knowledge and expertise of using particular tools, and provided suggestions to each other. The nature of members' engagement in the WiA group was, therefore, fundamentally different to that of the FOR-PD community in Zygouris- Coe and Swan's (2010) study.

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[46] Whilst the technology professional development reported in Pachler et al.'s (2010) study can be considered to have generally remained at the level of TK, a number of the skills were reported to have been developed by teachers in that study, which can also be considered to represent TCK.

However, as we have seen in Section 4.2.2, not all members participated equally in the knowledge creation process with the WiA group. As such, a significant difference was observed between members' participation levels and their reported TCK, TPK, and TPACK scores, respectively; the more a Webhead interacted and collaborated with the community the higher their TCK, TPK, and TPACK scores were (see Section 4.3.3). Furthermore, the interview data supported the observation that this difference was related to members' levels of participation in the community. These findings provide support to the notions of zone of proximal development (Vygotsky, 1978) and legitimate peripheral participation of members since peripheral members reported to have extended their knowledge and skills of technology integration through their interaction and collaboration with others in the community (see Section 4.3.3). It is possible that those members, who were once peripheral members, began to participate more actively in the community and moved towards the centre as they became active/ core members who seemed to be more knowledgeable than the current peripheral member (Lave & Wenger, 1991). This finding is similar to those of other researchers in whose studies the reported teacher professional development seemed to suggest development of TCK and TPK that was linked to teachers' collaborations (Guzey & Roehrig, 2009; Pachler et al., 2010; Vavasseur & MacGregor, 2008). Therefore, these findings highlight the importance of not only participation in a community but also interaction and collaboration among members for reaching their objectives (in this case learning about technology integration in language teaching). It should, however, be acknowledged that in spite of the evidence (questionnaire and interview data) presented to support this argument, there is still a possibility that an individual with a high level of expertise can join the community and stay in the periphery to better understand the workings of the community first and then start participating actively once s/he feels safe and confident to contribute to the community. Nevertheless, in the light of the evidence presented so far, it can tentatively be concluded that an OCoP approach might be used as an alternative approach for teacher professional development. Indeed, there are a number of characteristics that the WiA community and its members have which can explain the perceived learning taking place in this OCoP. Those characteristics will be discussed below.

First, as we have seen in Section 4.2.5, the WiA community follows a bottom up approach and Webheads decide what to discuss in their Learning2gether sessions. Furthermore, there are no moderator restrictions on the asynchronous WiA platforms and Webheads are free to post their messages when they want (see Section 4.3.1.1). In this sense, we can say that Webheads are given the freedom to choose the areas in which they wish to develop and activities to undertake (Walter & Briggs, 2012). This also suggests that the

teachers are empowered within the WiA community (Putnam & Borko, 1997) and learning is participant driven (Darling-Hammond & McLaughlin, 1995).

Secondly, the WiA community is diverse and consists of members who are teaching languages in different parts of the world and in different contexts (i.e. primary school or higher education; see Section 4.2.1.1), which suggests there is variation in the levels of expertise within the community from which members can benefit. Therefore, we can say that the WiA community brings in expertise from outside each members' own school environment, which has been found to be an additional characteristic of effective professional development (Cordingley et al., 2005; Walter & Briggs, 2012). Thanks to this diversity and the norm of providing support to other members (see Section 4.2.4.1), the community is always active and the help requests to the community are always responded to in a timely manner (see Section 4.3.1), which can be considered to provide the "just in time" rather than "just in case" training opportunities for teachers' TPD that Hixon and Buckenmeyer (2009) claimed to be effective (see also Hanson-Smith, 2006; Vavasseur & MacGregor, 2008).

Thirdly, in order to be able to interact online, the Webheads need to use technology tools which provide them with opportunities where they are not only communicating with other members but also practicing the use of technologies. In addition, in their Learning2gether sessions they explore and experiment with the use of new technologies (see Section 4.3.1.2). As we have seen in Section 4.3.3, Webheads have subsequently utilised those tools in their teaching. Therefore, this experience can be considered to be "hands on", concrete, and situated, which are characteristics that are deemed effective by researchers (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995; Walter & Briggs, 2012).

Fourthly, Webheads' perceived professional development takes place through their participation and interactions within the community. As we have seen in the Yahoo! group message history (Section 4.3.1.1) and Learning2gether sessions (Section 4.3.1.2), teachers help each other, collaborate, and engage in collegial dialogue in their online spaces. This supports researchers' conclusions that in effective professional development teachers become active participants of the learning process and collaborate with each other (Cordingley et al., 2005; Darling-Hammond & McLaughlin, 1995; Little, 1993; Putnam & Borko, 1997; Walter & Briggs, 2012).

Fifthly, we have seen that when they first join the community the Webheads tend to be peripheral members but are nonetheless welcomed and given full access to community's knowledge and expertise. In addition, the core members in the WiA activity system can be considered to be members who serve as role models for peripheral members. Through this

modelling, peripheral members are provided with legitimate peripheral participation opportunities and not only learn about the workings of the community (i.e. norms), but also develop their knowledge and skills in the use of technology. In time, they become active and/or core members (old timers), who model this behaviour for the newcomers[47]. In this sense, the WiA community provides mentoring and coaching opportunities, key qualities of effective professional development (Cordingley et al., 2005; Walter & Briggs, 2012).

Finally, the learning taking place in the WiA has been continuous throughout the last 12 years; thus, it can be considered ongoing and sustained over time, which is another characteristic of effective professional development (Darling-Hammond & McLaughlin, 1995; Walter & Briggs, 2012). Finally, we have seen that core members (particularly Vance, the moderator), who are considered to be the leaders of the community, have been influential figures in sustaining the WiA community for over a decade (see Section 4.2.5). This supports researchers' findings that effective professional development is supported by effective leadership (Walter & Briggs, 2012).

5.3.1. Summary of discussion for RQ2

The answer to RQ2 appears to be "yes"; participation in the WiA community led to EFL teachers' perceived technology professional development. Regardless of their level of participation in community interactions, all Webheads reported to have developed their TK. A finding that is worth highlighting is that active and core members' more frequent interactions and collaborations with other community members resulted in significantly higher TCK, TPK, and TPACK scores, which suggested a positive relationship between members' perceived professional development and their level of participation. Overall, these findings suggest that an online community of practice (OCoP) approach can be a viable alternative to technology professional development, thanks to the provision of factors such as: allowing teachers control in the selection of areas in which to develop their knowledge/skills; providing "just in time" support; actively engaging teachers in the learning process; and sustaining engagement and interactions over time.

5.4. Factors affecting members' participation in the WiA community

So far in the discussion, it has been shown that WiA can be considered as an OCoP and through their participation either as a peripheral member (watching others' interactions) or active/core member (actively engaging in discussions), Webheads perceived to have developed their

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[47] The reader is reminded that not all peripheral members become active and/ or core members.

knowledge of technology and its integration into their teaching practice. In this sense, WiA can be considered to be a successful OCoP. Factors that have been found to affect WiA members' participation in this successful OCoP will be discussed in this section. These factors have been grouped and will be discussed under two overarching themes. The first is the creation of a sense of community and belonging, which was achieved through various means such as an initiation process in which participants built a community identity. The second theme is the dynamism that is inherent in the WiA community, which manifested itself through various means such as a flow of continuous member recruitment to the community. Additionally, a number of factors, which fall outside of these two core themes, are discussed under the heading "Other factors". As they participate, members of the WiA community take on different roles within the community, which will be unfolded after discussing the factors that affect member participation.

5.4.1. A sense of community and belonging

A sense of community has been defined as "a feeling that members have of belonging … that members matter to one another … and a shared faith that members' needs will be met through their commitment to be together" (McMillan & Chavis, 1986; as cited in Sharratt & Usoro, 2003). In Section 4.2.1, we have seen that members of the WiA community refer to themselves and each other as "Webheads". This implies that the Webheads developed a sense of belonging within the WiA community and over time have built a shared community identity. Factors that have contributed to the creation of a sense of community and belonging have been identified as: having an initiation process for developing a shared community identity; voluntary participation; having an inclusive community environment thanks to the norms that guide member interactions; and members' meeting each other face-to-face.   Additionally, members' trust in the WiA community's benevolence, expertise, and integrity developed as a result of this sense of community.

5.4.1.1.   *Initiation process and development of a community identity*

It has previously been stated that the WiA community began as an Electronic Village Online (EVO) session, at the end of which the community members, rather than dispersing, chose to continue their interactions and gradually formed the OCoP WiA. (C. M. Johnson, 2005; Kulavuz-Onal, 2013). Likewise, the results of this study revealed that a majority of the interviewees had participated in an EVO session [Becoming a Webhead (BaW)] prior to joining the WiA community. Based on the results presented in Section 4.2.1.1 and 4.3.2.1, the BaW EVO sessions can be considered to be an initiation process that brings in new members to the WiA community. Through this initiation process, interviewees become more familiar with the

shared domain of the community and with the CMC tools that the community utilizes for their interactions. In addition, participants are introduced to a number WiA community members. In conjunction, these factors provide "a smooth transition to the community" (Cecilia, Core member).

At the end of BaW EVO sessions, participants were informed that they had become "Webheads" and were invited to join the WiA community. Comparing the definition of a "petrolhead" who has been described as "a person who is excessively interested in or is devoted to travelling by car" (petrolhead, n.d.) and a "cokehead" who has been described as "a cocaine addict or habitual user" (cokehead, n.d.) to the term "Webhead", it can be argued that the use of "Webhead" for referring to each other suggests WiA members' addiction or, more suitable to the case of present study, their commitment to the use technology. Indeed, this has been reported as their motivation for joining the community in the first place (as shown in Section 4.2.1). In this sense, referring to each other as Webheads can be seen as a manifestation of the members' shared identity and commitment to the WiA community, whose established focus is learning about the use of educational technology. This is in line with the findings of Booth (2012) and Hew (2009), who reported the formation of a collective identity around the shared domain within successful online communities of teachers. Members' commitment to developing their practice has been noted as a motivator to share knowledge with the community by members of the different online communities that Hew (2009) examined. Similarly, teachers in the communities that Booth (2012, p. 18) examined have been reported to be "committed" and "bonded by their passion" to the purpose of the community to which they belonged. On the other hand, in Thang et al.'s (2011) study a lack of community identity was considered to be a negative factor preventing member participation and, as a result, also preventing the formation of a CoP. Therefore, these findings provide further support to Wenger-Trayner and Wenger-Trayner's (2015) argument that a CoP has an identity defined by its shared domain. It can be concluded that the process of participating in the BaW EVO sessions contributed to the creation of a sense of community and belonging, by providing members with opportunities to develop their knowledge and understanding of the shared domain and helping them to build a community identity committed to that shared domain.

5.4.1.2. *Voluntary participation*

It is worth highlighting that, at the end of BaW EVO sessions, participants were invited to join the WiA community but were not pushed to register to the WiA community (see Section 4.3.2.1). Interviewees made an informed and voluntary decision to join the WiA community.

Interviewees' community interactions, in which they helped each other, were also on a voluntary basis (see Section 4.2.5). When considered in relation to the term "Webhead" which implies interviewees' commitment to the community and its shared domain, this finding supports Wenger et al.'s claim (2009, p. 4) that "for a community to form, the topic must be of more than just a passing interest" (see also Lai et al., 2006; Wenger et al., 2002). Moreover, this finding is in line with findings of other researchers who examined online teacher communities that were reported to be successful (S. E. Booth, 2012; Hew, 2009). Similar to the WiA community, membership to the online communities that Booth (2012) and Hew (2009) investigated was self-selective indicating members' voluntary participation in those communities. This finding also sheds light on why some of the online communities created for teachers might have failed to develop into OCoPs (see Carr & Chambers, 2006; Thang et al., 2011). It has been reported that teachers in Carr and Chambers' (2006) study and most of the teachers in Thang et al.'s (2011) study were nominated or chosen by school principals to register in the online communities created for them. This suggests that even though those teachers were interested and/or encouraged to participate in the community, they might not necessarily have volunteered to participate in those communities.

5.4.1.3. An inclusive community

It is possible that, along with members' commitment to the shared domain, having an inclusive community served to increase development of a sense of community and motivated member participation in the WiA community. We have seen that, although Webheads share similar aims, small nuances have been observed in their motivation for joining the WiA OCoP. In addition, members were also from different countries and taught in different contexts (i.e. primary school and higher education; see Heterogeneity in Section 4.2.1.1). With regards to this point, Wenger et al. (2009) noted that the differences in members' characteristics and their expectations from the community may result in controversies in the definition of their shared domain and may lead to "heated debates", where members with opposing views bring forward their arguments using strong language. In the case of WiA OCoP, however, the analysis of community interactions over nine months revealed that such debates did not take place within the community. Meanwhile, there were a number of instances where disagreements were observed but these did not develop into "heated debates" (see Thread 23 in Appendix 15, p. 277).

In addition, the results of the present study have demonstrated that the domain and activities of the WiA community are not imposed on but guided by members. As explained by Vance (Core member), there are no restrictions on postings and any registered member can

post to the community platforms and ask others questions or share information with the community (see Section 4.3.1.1). In fact, as we have seen in Section 4.2.4.1, members (including peripheral members) have asked questions that they sought answers to, engaged in discussions, and shared information that they thought others would find useful (see also Section 4.3.1.1). Additionally, Vance not only informs the community of the upcoming events but also actively encourages members to volunteer; when members volunteer, they are the ones who decide on what to present and/ or talk about in the Learning2gether sessions (see Section 4.2.5). The fact that a variety of individuals, who have different characteristics and expectations, are brought together in the WiA community and yet the Webheads' interactions, which result in knowledge construction, have continued over 12 years without heated debates[48], supports the idea that WiA is an inclusive community. These findings also lend support to Wenger et al.'s (2002; 2009) claims that each member's view should count within a CoP. Furthermore, disagreements and negotiations that do not develop into "heated debates" can be a positive occurrence for the development of shared practice, because they can potentially make the community more effective, productive, and richer. These observations are also in line with findings of previous research on teacher CoPs (Baek & Barab, 2005; Hou, 2015; Riverin & Stacey, 2008). Baek and Barab (2005) found that teachers' level of participation in the Inquiry Learning Forum (ILF; the community) remained low since their expectations were not met in the initial stages. This eventually led designers to negotiate and compromise with teachers to reach a conclusion that takes into account teachers' perspectives, in order to increase their participation. Likewise, Riverin and Stacey (2008) related the participation of fewer members in the community to the perceptions of new members that older[49] members were not inclusive enough. On the other hand, in Hou's (2015) study it was reported that student teachers' perceived their experience of the online community created for them to be "enjoyable" thanks to members' valuing each other's online presence. Based on the discussion in this section, inclusiveness can be considered to be a positive factor that contributes to the creation of a sense of community and which, in turn, motivates members to participate and interact with the community without hesitation when they feel the need to. Community norms which may have contributed towards building an inclusive community will be discussed in the next section.

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[48] The case in which a spammer harassed the community can be considered as an exception to this. However, there were no other reported examples of such incidents by the interviewees, some of whom have been members of the community since the day it was created.

[49] "Older members" refers to members who registered to the community in an earlier time

5.4.1.4. Community norms

Norms, "in the online environment, […] are […] critical as they form the foundation on which the community is built" (Palloff & Pratt, 1999, p. 23). Preece (2001; 2004) proposes that online communities need rules and/ or norms which would guide members' interaction within the community. Parallel to this, as we have seen throughout 4.2.4, Webhead interactions were, in fact, guided by a number of norms. Likewise, research studies reported that norms and guidelines facilitated discussions in online teacher communities (Baek & Barab, 2005; S. E. Booth, 2012; Hew, 2009).

It is worthwhile to remember that the norms identified in the WiA OCoP were: 1) providing support to other members; 2) being polite; 3) being respectful; 4) avoiding political discussions; 5) avoiding religious discussions; and 6) avoiding spamming. Similar to the findings of the present study, having a respectful environment has been highlighted as an important characteristic of the communities that Hew (2009) and Baek and Barab (2005) investigated. Additionally, receiving timely responses (support) to their queries positively influenced members' participation in the present study, a finding that has also been highlighted by Hew (2009). What is interesting is that no previous studies, which have investigated teachers' participation in online communities, have mentioned norms similar to "avoiding political and/ or religious discussions", which was found to be a key norm for WiA in the present study. When previous studies are further analysed, it can be seen that teachers who were members of the investigated communities were from the same country (see Baek & Barab, 2005; S. E. Booth, 2012; Hew, 2009; Riverin & Stacey, 2008). At this point it is useful to remember that members of the WiA OCoP are dispersed and live in different countries across six continents (see Appendix 12). Since the WiA OCoP has been able to sustain its existence over the last 12 years, norms such as avoiding political and religious discussions can be considered to be critical for cosmopolitan communities.

Another important issue to consider with regards to norms is whether they should be explicitly stated or implicitly applied. In the present study, no explicit rules have been found to be stated within the various platforms that the WiA OCoP uses. Neither did the interviewees report to be aware of any explicit rules (see Section 4.2.4). This finding is in line with the findings of previous studies that have investigated successful online communities (Booth, 2012; Hew, 2009). For example, one of the communities that Booth (2012) examined provided new members with guidelines for participation. However, Booth (2012, p. 17) found that rather than those guidelines, "it was the ways in which the informal norms of behaviour put into effect over time", that affected member participation positively. On the other hand, Riverin and Stacey (2008, p. 52) reported that "unwritten rules regarding established online

etiquette confused new participants" in the online community they investigated. Whilst older members were aware of the group norms, the newcomers were not informed; consequently, the community was perceived as an "old boys club" resulting in the reluctance of new members to participate (Riverin & Stacey, 2008). If we go back to the findings of the present study, regardless of their level of participation, interviewees seemed to be were aware of a number of norms, which guided their interaction in the WiA community. It is possible to explain this difference in relation to legitimate peripheral participation (Lave & Wenger, 1991). As a result of the inclusiveness of the WiA community, newcomers were welcomed into the community (see Section 4.2.5) and were provided with opportunities to engage in legitimate peripheral participation. They were exposed to the workings of the community through their observations and/or interactions with other members. This also included the BaW EVO sessions, which served as an orientation for new members. Additionally, the moderators/leaders of the BaW EVO sessions can be considered to be mentors who modelled the appropriate behaviour, which is expected from members in the community (see Section 4.3.2.1; 4.2.5.1; see also Preece, 2004).

Notably, the previous studies, which investigated successful teacher OCoPs, found that the norms of the community were enforced by the moderators, who were referred to as "watchdogs" (Hew, 2009), "sheriffs" or "shepherds" (Booth, 2012). These metaphors convey the idea that a moderator is responsible for maintaining the community as a safe place in which the members would feel secure enough to participate in online discussions. Different to those metaphors, in the present study, Vance's (Core member, also the moderator) role[50] was likened to that of a "cat herder" by a number of interviewees, which Vance, himself, explained to reflect "his hands-off management" of the community (see Section 4.2.5.1). As a reminder, Vance explained that he would let members, who have problems, "work it out". This implied that he did not want to be seen as an authority figure. Additionally, since no problems among members were observed within the nine months of data collection, it seemed that the WiA community was self-organized and members were self-imposing the reported norms, another characteristic of successful online communities (Preece, 2004). In spite of this, however, when the community was harassed by one of its members in the past, it was Vance who took the initiative and blocked that member to restore order in the community. This suggests that Vance had a similar responsibility to the moderators who were referred to as "watchdogs" (Hew, 2009), "sheriffs" or "shepherds" (Booth, 2012). Therefore, it can be interpreted that having a moderator who oversees the community is important for motivating members to participate by making them feel safe within the community.

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[50] The roles of the moderators will be discussed in more detail in Section 5.4.4

In light of the evidence presented in this section, we can reach the conclusion that even when a community is self-organized, there might still be a need for moderators who oversee the community. Furthermore, having norms that are unwritten seem to work better for teacher OCoPs; however, opportunities for newcomers and old-timers to interact should be created so that newcomers are given a chance to observe and learn those norms. Last but not least, norms such as avoiding "political" and/ or "religious" discussions can be considered as critical for cosmopolitan teacher OCoPs, unless they have been brought together to have discussions particularly around these topics. In the next section, the effect of meeting other members in real life will be discussed.

5.4.1.5.   Meeting face-to-face

In their review of literature, which has primarily consisted of studies in the field of business organizations, Lai et al. (2006, p. 46) concur that "[i]nitial face-to-face communication is an essential prerequisite to establishing higher levels of trust among agents working from geographically dispersed locations". Similarly, Riverin and Stacey (2008) found that the face-to-face training meetings at the initial stages of community formation enabled members to bond and acted as an incentive for the teacher participants to continue their interactions in the online community that had been created, in spite of the technological challenges those teachers faced. This, however, does not seem to be the case for the WiA community. The members of the WiA community are dispersed around the world, which makes it harder for members to have face-to-face meetings. In addition, as previously reported, the community was formed at the end of a session in which members met online (C. M. Johnson, 2005). Further, most of the interviewees in the present study explained that they met fellow Webheads online with no prior face-to-face interaction (see Section 4.2.2.2 and Appendix 11). In this sense, the fact that these members continue to follow the community demonstrates that having face-to-face contact prior to joining the community is not necessarily a prerequisite for the success of a community.

Notably, although most of the Webheads did not have face-to-face contact prior to joining the WiA community, their interactions online developed into friendships and individuals have subsequently arranged face-to-face meetings with fellow members in real life[51]. Popular destinations, in which those meetings took place, were the TESOL conventions in the USA and more recently IATEFL conferences in the UK. Additionally, the interviewees reported that they would let other community members know of their travel plans and try to

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[51] Exceptions to this are Patrick, Marilyn, Mona, and Sally who are peripheral members

arrange meetings with other community members who live close to their travel destinations (see Section 4.2.2.2). Most interviewees reported that when they met other WiA members in face-to-face settings, they felt like they already knew each other and were meeting old friends, which suggests that members' online presence was strong enough to develop friendships. Some interviewees considered that meeting other members in real life was a "natural" outcome and as Vania (Active member) put it; meeting face-to-face "just confirmed everything that I knew. It was nice to meet people […] but we already were friends". Those face-to-face interactions "bonded" (Julio, Active member) members but as we have seen in Section 4.2.2.2, Webheads had already developed these friendships in the online environment. Based on this, it can be argued that having face-to-face meetings with members of the community is positive but, again, not a prerequisite for the success of this OCoP.

The above finding contradicts the findings of the previous studies conducted on teacher OCoPs. For example, in Hutchinson and Collwell's (2012) study, which was conducted with beginner teachers, participants clearly expressed their preference for receiving face-to-face support rather than through the wiki[52] environment, where the online community had been created for their use. In this study, Hutchinson and Collwell (2012) reported that technology has the potential to be isolating and suggested that blending online interactions with face-to-face ones may be more effective. Similarly, a number of other researchers have reported that there is a need for face-to face interactions among members of an online community; the reason for which could be related to the lack of visual and verbal cues in online environments, which have been reported to negatively affect member participation (Baek & Barab, 2005; Carr & Chambers, 2006; Hew & Hara, 2007; Hutchinson & Colwell, 2012). At this point, it is worthwhile to remember that the technologies utilized for online communication by the communities that were investigated in previous studies included listservs (Hew & Hara, 2007), forums (Baek & Barab, 2005), wikis (Hutchinson & Colwell, 2012), and websites (Carr & Chambers, 2006). On the other hand, the findings of the present study revealed that the members of the WiA community were not only utilizing websites (the Yahoo!, Facebook, and Google+ WiA groups that can be considered to carry the characteristics of both a listserv and a forum[53]), but also videoconferencing tools such as Blackboard Elluminate and Google+ Hangouts for the Learning2gether sessions and Skype for personal

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[52] The reader is reminded that a wiki is a website that allows collaborative editing of its content and structure by its users.
[53] Yahoo!, Facebook, and Google+ WiA groups allow members to receive any message that has been posted to each one of the communities as an email similar to what a listserv does. However, the messages sent to each of these platforms are also displayed publicly and members can post comments to those posts which is similar to a forum.

contact with other WiA members (see Section 4.2.3). As Raine (Active member) put it "the only thing that is missing [in their online communication] is the human touch". It is possible that, in addition to the WiA members' strong online presence, a factor, that contributed to why interviewees perceived that there was no difference between meeting other members online and face-to-face, is the availability and use of video conferencing technologies, which can mirror face-to-face meetings and provide a stronger sense of online presence and engagement (see Section 4.2.3; Preece, 2000; Wenger, 2001).

To summarize, the findings of the present study suggested that meeting other members face-to-face in the initial stages of joining WiA was not necessarily a prerequisite, since members were perceived to have a strong online presence in the community. It was also highlighted that the video conferencing technologies used by the WiA OCoP might have increased the online presence and engagement of members. Notably, members did eventually meet other Webheads in real life, which seemed to have strengthened their bonds and potentially increased their sense of belonging to the WiA community.

5.4.1.6.   A sense of community (continued)

So far in the discussion, members' experience of the BaW EVO sessions has been considered in its capacity as an initiation process that contributed to the development of a sense of community. It has been highlighted that those who were committed to the community and its shared domain volunteered to join the community at the end of the BaW EVO sessions. In addition, it has been argued that the implicit norms of the WiA community resulted in an inclusive community environment which was also considered to contribute towards building a sense of community and motivate member participation. Furthermore, whilst Webheads had a strong online presence that enabled the development of relationship/ friendships among members, meeting other Webheads in real life settings was considered a positive factor that bonded members.

The analysis of the messages, which had been sent to the community within the nine-months of data collection, revealed that, in spite of the community's focus on learning about the educational uses of technology, not all of the messages were related to teaching with technology. Rather, there were also messages that included a social element and which were welcomed by other members and also considered to be a norm (see Section 4.2.4.1). It can be argued that being able to share messages that reflect members' personal lives and experiences and receiving responses to such messages can help the community building process, because sharing such messages provides a feeling of togetherness, camaraderie, and being with like-minded colleagues (see Homogeneity in Section 4.2.1.1). When present, such aspects have

been found to positively affect member participation in teacher communities (S. E. Booth, 2012) and when not present, have been found to negatively affect participation (Carr & Chambers, 2006; Thang et al., 2011). These findings also support Cothrel and Williams' (1999) claims that community building is a key factor that would contribute to achieving high levels of participation. In this sense, investments (time and resources) in activities that facilitate the creation of a sense of community can be considered legitimate.

Notably, the proportion of topics within the WiA community, which included a social element (for example, holiday celebrations), was 11 % (21 out of 190 threads; see Section 4.3.1.1), which is 6 times higher than the proportion of 2 % reported for the community, which Carr and Chambers (2006) had created. They reported the 2 % ratio of social interactions to be insufficient and potentially discouraging member participation. As can be seen from the results of this study, although the majority of WiA interactions remained in line with their shared domain, messages with a social content covered a visible and substantial amount of all WiA interactions. Whilst it would not be correct to specify an 'ideal' proportion of social topics within an OCoPs overall message history, given the positive perceptions of the social content within the WiA community interactions, it can be concluded that a community should provide opportunities for members to talk about, not only their profession, but also more social and affective aspects of their lives. It is, therefore, proposed that a substantial level of social support and affective messages should be permitted within the community, while the general interactions of a community can remain centred on the shared domain.

5.4.1.7.   Trust

It can be said that the initiation process, community norms, meeting face-to-face with other members, and the inclusiveness of the community, all of which resulted in the development of a sense of community, also related to and contributed to the element of trust, which is considered to be an important factor allowing members to participate and create/ share knowledge in CoPs (Lai et al., 2006; Sharratt & Usoro, 2003; Usoro et al., 2007). In this section the results of the present investigation will be discussed in relation to the trust framework developed by Sharratt and Usoro (2003) and validated by Usoro et al. (2007).

The findings of this study suggested that the three dimensions of trust (integrity, competence, and benevolence; see Sharratt & Usoro, 2003; Usoro et al., 2007) exist in the WiA community. To begin with, integrity trust, which was found to be the most influential predictor of trust, relates to the honesty, truthfulness, and credibility of another party (Sharratt & Usoro, 2003). As we have seen in Section 4.2.6.1, the Webheads reported that they felt "comfortable", "safe", and "secure" suggesting a satisfactory level of integrity trust was

achieved in the WiA community; a characteristic which previous research has demonstrated motivates teacher participation in online communities (Baek & Barab, 2005; S. E. Booth, 2012). In Booth's (2012) and Baek and Barab's (2005) studies, it was reported that the presence of member profiles, which were accessible to all members, helped in establishing the authenticity and credibility of other members; thus it can be considered to have contributed to integrity trust. The WiA Yahoo! Group, however, does not include profile pages for members. Nevertheless, it is possible that the synchronous Learning2gether sessions[54], as well as members' signatures[55] at the end of messages posted in the community, assisted the Webheads in establishing the authenticity of fellow members. Similarly, as we have seen in Section 4.2.2.1, active and core members were renowned and recognized by other members in the community thanks to their frequent participation. It is possible that those members' contributions to the community might have helped in establishing their credibility (see Section 4.2.5.1); hence, also contributing towards integrity trust. In contrast, in communities where teachers did not perceive a satisfactory level of security, they were not willing to initiate or participate in discussions, suggesting low levels of integrity trust (Riverin & Stacey, 2008; Thang et al., 2011).

The second dimension of the trust framework is competence trust, which holds the assumptions that "[t]he fear of losing face should dampen the positive influence of competence trust on knowledge sharing whereas passion for knowledge should do the opposite" (p.209). Creating small and private groups where teachers can develop more intimate relationships has been suggested as a way to prevent the decrease in teacher participation due to fear of being criticized in a public space (Baek & Barab, 2005; S. E. Booth, 2012). This proposal supports Usoro et al.'s (2007) finding that the fear of losing face can be a source of demotivation preventing participation. In relation to community sizes, no clear definitions have been provided in the literature of how many members are required for a community to be considered "small". Therefore, it would not be correct to make a judgement about whether WiA is a small community or not. However, unlike the communities in Booth's (2012) and Baek and Barab's (2005) studies, WiA is not a private or closed community. As such, all WiA platforms and communication taking place among members in those platforms are publicly available (see Section 3.8). In spite of this, members (including peripheral members)

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[54] The reader is reminded that videoconferencing technologies allowing participants to see and hear other participants are utilized in the Learning2gether sessions, which are also video recorded and accessible to members in case they have been unable to participate in the synchronous Learning2gether sessions.
[55] It has been observed that the member signatures included not only the sender's name but also details of their occupation in many cases.

did not seem hesitant and directed questions to the community when they needed help, implying members' trust in the Webheads' competence (see Section 4.3.1.1). It is possible that the support from other members (not only technical but also social), as well as Webheads' approach that "no question is too silly" (Hailey, Active member), encouraged the Webheads to take calculated risks and direct their help requests (see Section 4.2.4). This proposition is supported based on the fact that no help requests were left unanswered in the WiA community (including the ones from peripheral members). It is important to note, however, that there were a number of interviewees who reported that they could not contribute to the discussions due to a feeling of lack of competence (see Section 4.2.5), suggesting that they did not want to risk losing face on certain occasions.

The third dimension is benevolence trust which carries the assumption that members engagement in knowledge sharing in a community increases when higher levels of trust in the community's benevolence is achieved (Sharratt & Usoro, 2003; Usoro et al., 2007). As we have seen in section 4.2.4, Webheads perceived that the WiA community members are "very very supportive" (Rebecca, Peripheral member). Additionally, there was no mandate for Webheads to contribute to the community; it was rather their volunteering and willingness to share and participate that created a virtuous circle and continuity of information exchanges within the community (see Section 4.2.6). This shows, as Vance put it, that "people really are altruistic here" in the WiA community. Therefore, it can be considered that the Webheads considered the community to be benevolent.

In summary, all three dimensions of trust, as suggested by Sharratt and Usoro (2003) and Usoro et al. (2007), were found to exist within the WiA OCoP and were considered to encourage members' participation in the community. It is now timely to look into factors that are grouped under the second main theme; dynamism.

5.4.2. Dynamism

As previously shown throughout the results chapter and at the beginning of this chapter (see Section 5.2.2; see also Figure 5.1), WiA is a dynamic community in which members have mutual engagement and interact on a regular basis by asking/ answering questions, sharing information, and meeting in online gatherings for presentations and discussions in relation to their shared domain. Two main factors were identified to contribute to the dynamism inherent in the WiA community which were: 1) the dynamic nature of their shared domain; and 2) ongoing recruitment of new members to the community.

5.4.2.1. *Dynamic nature of the shared domain*

Wenger et al. (2002, p.31) stated "[a] domain is not a set of problems it evolves with the world and the community". This highlights the dynamic nature of the shared domain of a community suggesting it can change over time. The Webheads' shared domain has been identified as learning about the integration of technology into the language teaching/learning process in Section 5.2.1. This finding was then compared to previous studies conducted on the WiA community (namely C. M. Johnson, 2005; Kulavuz-Onal, 2013) in order to test Wenger et al.'s claim. However, unlike Wenger et al. (2002), the findings of this comparison suggested that the shared interest of the Webheads had not changed in spite of the 12 years (as of 2014) that the WiA community existed. Similar to the shared domain identified in this study, C. M. Johnson (2005, p.3) reported that the WiA community was established in 2002 "for mutual learning and testing of Web-based tools in language instruction". Likewise, Kulavuz-Onal's (2013) findings also suggested that the WiA members' aim for joining and participating in the group was learning about technology tools and their application in language learning. It is possible that the WiA group has sustained their interest in the educational uses of technology due to the fact that technology itself is a dynamic concept that has a fast pace of change. For example, C. M. Johnson (2005) reported that the WiA community, in its initial stages, used and held discussions about the use of synchronous text-chat technologies such as Yahoo! Messenger and Tapped In[56]. The study conducted by Kulavuz-Onal (2013)[57], almost a decade after C. M. Johnson (2005), showed that members of the WiA were engaged in using and discussing the more recent and varied web-conferencing tools such as Scribblar[58] and Skype. Finally, it can be seen in Section 4.3.1.2 of the present study that the community's discussions centred around how to use mobile devices (i.e. Ipads) and more recent video conferencing tools (i.e. Google+ Hangouts). In this sense, in line with Wenger et al.'s (2002) argument, it can be considered that community's shared domain did, in fact, evolve over time. Therefore, it can be argued that the changes that take place within the shared domain provide the community with new topics around which to interact and lead discussions, which can be seen as a positive factor for members' ongoing interactions and participation in the community.

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[56] It is acknowledged that Tapped In also enabled asynchronous discussions.

[57] Although Kulavuz-Onal received her degree in 2013, the data she collected from the community dated back to 2011.

[58] Scribblar is a commercial software that provides users with online whiteboard, real-time video/audio, and text chat and is aimed at helping online tutoring (see http://www.scribblar.com/)

5.4.2.2. *Ongoing recruitment of members*

The findings of the present study revealed that the members of the WiA community joined the community at different times throughout the years that the community has been running (see Figure 4.3 in Section 4.2.1.1), suggesting that new members have been recruited to the community on an ongoing basis. This is in line with Lai et al.'s (2006, p. 31) claims that members join and leave CoPs and that this "inherent community turnover means there is a need for ongoing recruitment" of members in order to sustain the critical mass (see also Barab & Duffy, 2000; Preece, 2000; St-Onge & Wallce, 2003; Wenger et al., 2002). It is possible to argue that members are kept motivated to follow the community since ongoing member recruitment can help to achieve the critical mass needed for continuous activity within the community.

In relation to the recruitment process of the WiA community, it is worth noting that anyone who has an interest to join the community can do so by registering themselves to the WiA platforms (Facebook, Google+, and Yahoo! groups). However, after the formation of the WiA community at the end of the WiA Electronic Village Online (EVO) session, the main strategies through which new members have been recruited to the WiA OCoP were identified to be:

- finding out about the Becoming a Webhead (BaW) EVO sessions and registering to the WiA community at the end of BaW EVO sessions,
- learning about the WiA community through colleagues and participating in the BaW EVO sessions prior to joining the community (see Homogeneity in Section 4.2.1.1).

Although the need to recruit new members has been articulated in the literature, the process of how to recruit members to OCoPs does not seem to have received much attention, with the exception of Lai et al.'s (2006, p.39) statement that "community leaders usually recruit members privately", which has, in fact, been supported in a recent empirical study conducted by Booth (2012). Booth (2012) reported that in a successful online teacher community the leader of that community took the initiative and identified and recruited new members. The findings of the present study also lend support to Lai et al.'s (2006) claim, in the sense that the BaW EVO sessions, which brought new members to the community, were organized by leaders/core members of the WiA community (see Sections 4.2.5.1 and 4.3.2.1). It can be argued that the BaW EVO sessions have provided a framework of apprenticeship or mentorship, which Wenger et al. (2002, p. 147) highlighted as a means "to connect newcomers with old-timers". The interview data suggested that during the 10 years in which it ran, the BaW EVO session served the WiA OCoP as being an orientation and mentoring opportunity for

new members, in which those new members became familiar with, not only the shared domain of the WiA community, but also the technologies used for online interactions, and the members of the WiA community (see Section 4.3.2.1). Therefore, it is possible to argue that an induction program through which new members of the community are given orientation can be useful to motivate and integrate those members within the community (see Wenger et al., 2009).

At this point, it is also important to remember that EVO is part of the CALL- Interest Section (IS) that belongs to the Teachers of English to Speakers of Other Languages (TESOL)[59] organization. Since the WiA community was able to actively recruit new members, primarily through the BaW EVO sessions[60] for over a decade, it can be argued that creating networks with organizations that share similar interests/ characteristics can help in extending a community's reach to the world and increase the visibility of the community as well as the chances of recruiting new members.

Last but not least, in addition to the dynamic nature of the shared domain and ongoing recruitment of members, the diversity of the community can also be considered to contribute to WiA's dynamism. As a reminder, it has been found that while sharing a common goal (see Homogeneity in Section 4.2.1.1), a certain level of diversity existed in the Webheads' characteristics (i.e. living in different countries) and expertise (i.e. teaching in different contexts; see Heterogeneity in Section 4.2.1.1). The expertise and geographical diversity of the WiA community contributes to its dynamism in the sense that the community is always active (i.e. 24 hours a day) and there is always a member (or members) available, to provide support to other members. As we have seen in Section 4.3.1, when Webheads directed queries to the community, at least one response was received on the same day with the fastest response being sent in just under a quarter of an hour. This finding also lends support to researchers' claims that diversity is important for supporting the knowledge creation and sharing process in communities of practice (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009).

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[59] TESOL is a professional association with a mission to ensure excellence in English language teaching to speakers of other languages (see http://www.tesol.org/).
[60] There are over 1000 registered accounts in the WiA Yahoo! group and it is acknowledged that not all of those accounts have been registered at the end of the BaW EVO sessions. However, the interviewee profiles showed the critical role those EVO sessions played.

5.4.3. Other factors

A number of factors that did not fit within the overarching themes presented above are grouped in this section. Those factors are: clear definition of the shared domain; technology; and practice.

5.4.3.1.   *Clear definition of the shared domain*

It has been found that both the community pages of the WiA and BaW establish a clear general purpose of what the WiA community is about, with the aim being more specific to language teaching in the latter, and the members who join the WiA community seemed to be motivated to join for this purpose (see Section 4.2.2.1). It is timely to remember that the shared domain has been described as what brings individuals together and guides their learning (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009), thus, suggesting a commonality of purpose. This commonality of purpose seemed to have been achieved in the case of WiA (see Section 4.2.2.1) and, consistent with Riding (2001) and Booth's (2012) findings, this guided Webheads' interactions within the community and resulted in the creation of artefacts that are directly accessible to members of the community (see Section 4.3.1). In contrast, Carr and Chambers (2006) and Thang et al.'s (2011) studies can be considered to be examples of what happens when teachers do not perceive to have sufficient commonality with other members, which in turn can gradually decrease their participation in the community, as their interest decreases due to not being able to find common ground for engaging in activity. Based on this, it can be inferred that having a clear and focused purpose can positively affect member participation in a CoP, since it can allow newcomers to assess the potential benefits of the community, thus, encourage their commitment when the shared domain fits their aims.

5.4.3.2.   *Technology*

Throughout Section 4.2.3, we have seen that the Webheads utilized a number of different a/synchronous CMC tools for their interactions and a number of themes were identified for why some tools were preferred to others. Two themes namely ease of use and integration into members' lives, which relate to the technological aspects of those tools, will be discussed in this section. To begin with, members considered the WiA Yahoo! group platform as "basic" and "technology friendly", and Skype as "quite simple" and "practical", which reflected members' perceived ease of use of those technologies. In addition, the considerably higher number of interactions within the WiA Yahoo! Group, compared to other asynchronous WiA platforms, supports Sharratt and Usoro's (2003) claim that the perceived ease of use of a tool increases the likelihood that it will be preferred for communicating with other members of an online community. Therefore, it can be argued that the tools a community utilizes for communication

should be easy to use (see alsoBaek & Barab, 2005; Lai et al., 2006; Preece, 2001; Wenger et al., 2002).

In addition, the Webheads also seemed to make their tool preferences (Yahoo! and Skype) based on how frequently they were able to access those mediums. The reader is reminded that, although WiA Yahoo! group interactions are stored and publicly available online, members received all community interactions as emails (using a daily digest or receiving each message individually). As such, the use of email seemed to have become a regular part of Webheads' daily activities. Given the level of participation and activity within the WiA community, this finding also supports Wenger et al.'s (2009) argument that all members should be able access the community and the knowledge it produces if the cohesion of the community is to be sustained. Therefore, we can conclude that communication tools that are easily accessible to members should be preferred for community interactions (see also Lai et al., 2006).

5.4.3.3.   Practice

The practice, in essence, is the result of mutual engagement around the shared domain (Davies, 2005; Wenger, 1998; Wenger et al., 2002; Wenger et al., 2009). With the exception of the social messages shared in the WiA Yahoo! group, the Webhead interactions, in general, related to educational technology; members shared their knowledge and resources with other Webheads through those interactions and the Learning2gether online sessions (see Section 4.3.1). The reader is reminded that the members' motivation for joining the WiA community was their aim of learning about educational technology (see Homogeneity in Section 4.2.1.1). As we have seen throughout Section 4.3.3, Webheads perceived their participation to have developed their TPACK, suggesting that their objective was achieved. In this sense, sharing and learning from what is shared with them can be considered to be a motivation for Webheads which in turn create a virtuous circle that has been sustained over the years (see Section 4.2.6 and 4.3.3);

> "People in our community just want to share things that they find they are good for teaching or learning and that's what this community is all about and I think that is why it has lasted for so many years and that it is still active" (Delma, Active member).

The findings of previous studies support this claim; it has been reported that teachers' participation decreased if their expectations from the community were not met (Baek & Barab, 2005; Carr & Chambers, 2006). In this sense, the findings of the present study support the proposal that the artefacts (*practice)* of a CoP should be relevant to members shared domain,

in this case teachers' teaching practice, and should provide them with opportunities to meet their professional development needs (Baek & Barab, 2005; S. E. Booth, 2012; Carr & Chambers, 2006; Hew, 2009; Hur & Brush, 2009; Wenger et al., 2009).

5.4.4. Community roles

The reader is reminded that, when they join a community, new members are positioned in the periphery; the core aim of any community should be the integration of those newcomers within the community by providing legitimate peripheral participation (LPP) opportunities, e.g. engaging them in activities and encouraging them to take roles in those activities (Lai et al., 2006; see Section 2.4.3). It can be said that thanks to the factors that have been discussed in Sections 5.4.1, 5.4.2, and 5.4.3 (e.g. having an initiation process and ongoing recruitment of members to the community), Webheads are motivated to participate in the WiA community and as they participate (either as peripheral or active/core members) they take on a number of different roles, which will be discussed in this section.

5.4.4.1.   *Leader/ moderator/ facilitator*

The findings of the present study found that the foremost mentioned role was that of facilitators. This is in line with the findings of previous studies that primarily reported on the role(s) of leaders/ moderators/ facilitators (S. E. Booth, 2012; Cothrel & Williams, 1999; Gairín-Sallán et al., 2010; Hew, 2009; Schlager & Fusco, 2004; Vavasseur & MacGregor, 2008; Wenger et al., 2002; Wenger et al., 2009). As the main facilitator of the WiA OCoP, Vance was referred to as a "kingpin; the driving force behind the Webheads" and took on a number of responsibilities such as: organizing the Learning2gether sessions; sending updates to the community regarding past/ upcoming Learning2gether sessions and inviting members to volunteer; and contributing to the ongoing discussions within the community (see Section 4.2.5.1). In this sense, Vance's role was similar to the moderators of the successful communities in previous studies, whose enthusiasm helped in creating a sense of community (Hew, 2009) and who offered encouragement through the newsletters sent to the communities they moderated (Booth, 2012).

Additionally, similar to the moderators in the communities that Booth (2012) investigated, Vance can be considered to have worked "behind the curtains" (p.13) due to his efforts to: find volunteers to present in Learning2gether sessions; network the WiA OCoP to other groups by posting invitations of Learning2gether events in different communities; and recording the Learning2gether synchronous sessions for members' use. On the other hand, unlike the moderators who have been referred to as "watchdogs" (Hew, 2009), and "sheriff" and "shepherd" (Booth, 2012), which convey the idea of a moderator who enforces norms of a

community and protects it, Vance's role has been likened to that of a "cat herder", which has been used to reflect his "hands-off" management approach. Thus, Vance was also considered to be a "democratic coordinator" (see Section 4.2.5.1). Nevertheless, as part of working behind the scenes, Vance was required to take steps through private channels to deal with a spammer who harassed the community; however, when his efforts failed, Vance was eventually forced to take the initiative and block that member (see Section 4.2.4.4). As a moderator, Vance prevented this chaos in the community from growing which, when synthesized with findings of previous studies, suggested that having a moderator who oversees the community is an important factor for member participation. Additionally, since they were the most frequently participating members in community activities (see Section 4.2.5), the leaders/ moderators of the WiA group can be considered to be the mentors who modelled appropriate behaviour in the community. It can be considered that through watching those members' interactions, other members were given opportunities for legitimate peripheral participation and learned about the norms that guide WiA interactions; a finding which supports Preece's (2004) claims and Booth's (2012) findings.

5.4.4.2.   Technology Stewards

One notable finding of the present study is the evidence and support for the technology stewarding role, as proposed by Wenger et al. (2009). Technology stewards can be considered to be members who have "*enough experience of the workings of a community* to understand its technology needs, and enough experience with or interest in technology to take leadership in addressing those needs" (Wenger et al., 2009, p. 25). As we have seen in Section 4.2.5.1, at the end of a conference, where she met a number of Webheads face-to-face, Cecilia (Core Member) observed the need for a space where members could share the Webhead gatherings with other community members, resulting in the creation of a Webheads in Action Flickr[61] account. Additionally, having observed the community's advances in their knowledge and expertise of using technology, in WiA community's second year of existence and in an effort to support potential new members who might be interested in joining the community, Telma (Core Member) and Delma (Active Member) created the BaW EVO session, in which, as Telma put it, members participated "to learn about [...] web communication tools". This can be considered to have helped those individuals, who joined the WiA community at a later point, with the technologies that the community used (see also Section 4.3.2.1). Last but not least, when the community interactions began to "taper off" and when he could not find enough

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[61] Flickr is an image hosting and video hosting website, and web services suite that was created Ludicorp in 2004 and acquired by Yahoo in 2005 see www.flickr.com

volunteers to gather an organizing committee for the biannual Webheads in Action Online Convergence (WiOAC) conference, Vance decided to bring in a new rhythm to the community by introducing the weekly Learning2gether synchronous sessions. Furthermore, Vance also moderates the Learning2gether sessions and, in an effort to make it easier for the presenters, provides the individuals, who volunteer to present a Learnin2gether session, with a choice of from the range of available synchronous video conferencing technologies, which the community utilizes (see Section 4.3.1.2).

Over the last 12 years, there has been a continuous stream of new members recruited to the community, mainly thanks to the BaW EVO sessions in which prospective members practiced the use of online communication tools utilized by the WiA community. In addition, while maintaining the Yahoo! Group as its main communication tool, the community adapted to the use of new technologies such as video conferencing, Facebook, Google+, and Flickr. While all of these developments relate to technology, the driving force behind their introduction to the community's service was the community and members' needs. In this sense, all of the Webheads mentioned in this section can be considered to be the technology stewards of the WiA community. In contrast, the teachers in Baek and Barab's (2005) study perceived that they were treated as "peripheral" rather than "central" members by the designers of the community. In that study, the teachers reported that they experienced problems in relation to the new technologies introduced by the designers for their use; the reason for this was perceived to be the designers' lack of understanding of teachers' culture. Based on the discussion in this section and since the WiA community has continued its existence for the last 12 years, we can conclude that technology stewarding is crucial for the emergence and growth of OCoPs (Wenger et al., 2009). Last but not least, the technology stewards of the WiA OCoP were all core members, which again supports Wenger et al.'s (2009) claim that technology stewarding is closely related to leadership and moderation of OCoPs.

5.4.4.3. *Subject matter experts*

Core members have been referred to as the "gurus; ribs and skeletons" of the WiA community (see Section 4.2.5). This reflects their expertise as subject matter experts (Cothrel & Williams, 1999; Fontaine, 2001). Additionally, Webheads reported that leadership in the community is "like turn taking" (see Section 4.2.5). This suggests rotation of the leadership among members, which Prestridge (2010) has found to have a positive impact on the community she created, since it encouraged and invited increased participation from the teachers who then came forward and contributed to the topics that they were interested in. In line with that, as we have seen in the nine-month message history, when their expertise was relevant, members

with all levels of participation came forward and participated in discussions taking place in the WiA Yahoo! group (see Section 4.2.5.1). It should, however, be noted that it was generally the core and active members, who responded to queries and shared their expertise with others; thus, they can be considered to be the subject matter experts.

5.4.4.4. Community members

In the present study, the peripheral members can be considered to be the community members, who were provided with opportunities to participate in community activities (Lai et al., 2006). It can be seen that the roles, which have been discussed so far, have been taken on primarily by core and/or active members. This can be explained in relation to legitimate peripheral participation (LPP) (Lave & Wenger, 1991), which holds the assumption that, when given access to community resources and mentoring opportunities, peripheral members will become more active participants and move towards the centre. In this sense, the community members (peripheral members) can potentially become active and core members. Cecilia provides a good example of how a peripheral member moved towards the centre of community activities. As she joined community activities, Cecilia increased her participation and eventually became a core member of the community (see Appendix 11). On the other hand, there are members, who in spite of being a Webhead for a long time, are still peripheral members and have never/rarely interacted with other community members (i.e. Patrick, see Appendix 11). This suggests for the realization of LPP, peripheral members should do more than observe community interactions, rather they should start engaging in collegial dialogue with other community members. However, it is important to acknowledge, that staying in the periphery might have been these peripheral members' preference.

Overall, it can be seen that Webheads voluntarily took on responsibilities and contributed to the community. Similar to the findings of previous studies, the role of moderator was considered to be the most important role. Additionally, it was found that a majority of the responsibilities within the community were taken on by core members. This was considered to be related to LPP and the results suggested that, to be able to move from the periphery to the centre, members should not only observe but also interact with the community.

5.4.5. Summary of discussion for RQ3

In relation to RQ3, there were a number of reasons which were found to positively motivate member participation in the WiA community. These factors were grouped under three headings: 1) development of a sense of community and belonging; 2) dynamism inherent in the community; and 3) other factors. It has been discussed that development of a sense of

community and togetherness is an important factor that can motivate member participation. Webheads are shown to have developed a sense of community through: having an initiation process that helped build a community identity around the shared domain; an inclusive community environment; community norms; and meeting each other in real world face-to-face settings. It has been argued that the development of a sense of community also helped the development of trust among members, which was also considered to motivate members' participation. Under the second theme, dynamism, it has been discussed that continuous developments in the WiA's shared domain kept members motivated and engaged. Moreover, the ongoing recruitment of new members has been considered to help achieve the critical mass necessary for the community to function. Under "other factors", it has been discussed that a clear definition of the shared domain can help attract members who are committed to the shared domain and interested in participating. It has also been discussed that ease of use and accessibility are important factors to consider when choosing the CMC tools that an online community would utilize. As for the practice, the artefacts that are parallel to a community's shared domain and members' objectives were considered as motivating for members. Finally, it has been discussed that, as members participate in community activities, they take on different roles and contribute to the community at different levels.

Chapter 6: Conclusion

6.1. Summary of the Study

This thesis has presented findings of a case study investigating whether participation in an online community of practice (OCoP) can be an alternative to technology professional development (TPD) of English as a foreign language (EFL) teachers and, if so, what factors affected teacher participation in the OCoP. The Webheads in Action (WiA) group, whose membership mainly consists of EFL teachers and which has previously been demonstrated to be an OCoP (C. M. Johnson, 2005), was chosen as the case to be investigated. Participants were 69 WiA members, who had joined the community at different times throughout the last 12 years in which the community had existed.

Since OCoPs grow, mature, and terminate like living organisms (Lai et al., 2006; Preece, 2000; Wenger et al., 2002); it was deemed necessary to established whether WiA can still be considered to be an OCoP, prior to exploring whether participation in the WiA group led to members' perceived development of technology knowledge and knowledge about the integration of technology in their teaching practice. The factors which affected members' participation in this community was another topic of interest investigated in this study.

A mixed methods research strategy was followed in order to answer the research questions that were addressed in this study. Initially, an online survey was administered over a period of one month, which aimed to gather demographic information about community members and measure their perceived technological pedagogical and content knowledge (TPACK). Additionally, survey participants were asked to provide their contact details if they were willing to participate in interviews resulting in the creation of a pool of potential interviewees. After that, the messages, which were publicly available in the WiA Yahoo! group and dated back to the last nine months (between the initial piloting of the study in the last quarter of 2013 and the survey administration for the main study in the second quarter of 2014), were collated in order to triangulate the results that would be generated from the interviews. Furthermore, the message history was used to identify survey participants' level of participation in the WiA community with the formula developed, in order to ensure that potential participants, covering all ranges and levels of participation, were invited to take part in the interview stage of data collection. This resulted in the interviews with 24 volunteers (11 peripheral, 9 active, and 4 core members), who had provided their contact details during the survey administration. Semi-structured interview questions guided by Activity Theory were directed to interviewees in order to collect data about their professional background and their

perceptions of the community. The utilisation of all of these instruments yielded rich data and both quantitative (i.e. non-parametric tests) and qualitative (i.e. thematic analysis) analysis methods were used to find answers to the research questions.

6.2. Summary of the findings

The present study has provided evidence that members of the WiA group share similar interests and have voluntarily gathered around the *shared domain*, which has been identified as learning about educational technology, and which seemed to have remained the same since the creation of the community (C. M. Johnson, 2005; Kulavuz-Onal, 2013). The results showed that there is ongoing activity within the group and members are mutually engaged (*community)* in exchanging information that is generally related to the *shared domain*, and new members have been recruited on an ongoing basis over the years. The *community* interactions are reified and archived in the public spaces of the group and can be seen as their artefacts and *practice*. These three aspects (*shared domain, community,* and *practice*) have been considered to be the fundamental elements of a CoP (Wenger et al., 2002; Wenger et al., 2009). Therefore the answer to the first research question is "yes"; the WiA group can still be considered to be an OCoP in its 12th (as of 2014) year of existence, which also suggests that it has sustained itself and matured (Lai et al., 2006).

With regard to whether participation in an OCoP leads to the perceived TPD of EFL teachers (RQ2), the survey results revealed the EFL teachers' technological pedagogical and content knowledge (TPACK) scores were high. However, when their scores were compared according to their level of participation, significant differences were found between peripheral members and active/core members' scores; the latter of whom engage and participate in community activities more frequently than the former. It was found that active and core members scored significantly higher than members in the peripheral group. The effect sizes (*r)* were calculated and a trend was observed, where the effect size continuously increased for higher order TPACK components. This finding suggested that the more teachers participated and engaged in community activities, the more they developed their knowledge of technology integration, which was further supported by the interview findings. The analysis of interview data revealed that the use of technology, as reported by interviewees in the core/ active groups, included higher numbers of examples showing members TCK, TPK, and TPACK than those in the peripheral group. Furthermore, because of member statements such as that of Cecilia (see below), the hypothesis that it was members' engagement and interactions that lead to perceived TPD was preferred over the hypothesis that those members were more

actively engaged in the community because they already had the necessary knowledge and expertise to be able to actively participate in those interactions:

> "I would not say 100% but 90% of what I became and […] the skills that I developed in terms of digital competencies are related to the Webheads" (Cecilia, Core member)

Thus, it was concluded that participation in the WiA OCoP led to EFL teachers' perceived TPD, a finding that lends support to previous proposals that online communities can be an alternative approach to TPD (Hanson-Smith, 2006; Lock, 2006; Pachler et al., 2010; Stockwell, 2009). Additionally, the OCoP approach to TPD has been found to provide EFL teachers with "just in time" (Hixon & Buckenmeyer, 2009) support that is sustained over time, offers teacher empowerment and collaboration opportunities, provides contextualized learning, and a choice in the areas to develop and activities to undertake. These observations resonate well with the findings of previous research on effective teacher professional development (Cordingley et al., 2005; Darling-Hammond & McLaughlin, 1995; Hixon & Buckenmeyer, 2009; Little, 1993; Putnam & Borko, 1997; Walter & Briggs, 2012). This suggests that the provision of teacher professional development through participation in OCoPs can be effective.

With regard to the factors affecting member participation (RQ3), two major themes were found to motivate member participation and contribute to the WiA community's success. These were: 1) creation of a sense of community and belonging; and 2) the dynamism inherent within the WiA community. There were also a number of factors that were grouped under the "Other factors" category. In relation to the creation of a sense of belonging, it was found that the Becoming a Webhead (BaW) Electronic Village Online (EVO) sessions, in which interviewees participated prior to joining the community, worked as a transition process into the WiA group, by helping potential members become more familiar with the shared domain of the community and develop a shared community identity around this shared domain. However, it was underlined that not all of the BaW EVO participants, but those who were committed to the community and the identity they had built around its shared domain as "Webheads", joined the WiA community. This is a finding that supports proposals of previous studies on the importance of the voluntary participation and commitment to the shared domain (Lai et al., 2006; Wenger et al., 2002; Wenger et al., 2009). In addition, the WiA community was found to be an inclusive community in which every member's view counted in spite of its diversity (i.e. different countries members were from), which was considered to be another factor contributing to the development of a sense of community (Wenger et al., 2002; Wenger et al., 2009). It was also found that community norms informed members' interactions and facilitated discussions taking place in the community, which, again, supported previous

studies' findings (Baek & Barab, 2005; S. E. Booth, 2012; Hew, 2009; Riverin & Stacey, 2008). One last factor considered to have contributed to the development of a sense of community was meeting other Webheads in real life; Webheads reported that this helped to create stronger bonds among members. Overall, these findings highlight the importance of creating a sense of community and belonging as a socio-affective factor positively affecting member participation in OCoPs, which supports findings of previous studies on online teacher communities (S. E. Booth, 2012; Carr & Chambers, 2006; Thang et al., 2011). This study also lends support to prior findings by Usoro et al.'s (2007) that knowledge sharing (member participation) is dependent upon building trust among members. The findings showed that the creation of a sense of community in the WiA also enabled trust among members and motivated member participation (Sharratt & Usoro, 2003; Usoro et al., 2007).

In relation to dynamism, it was found that the WiA group is a dynamic community to which new members register on an ongoing basis and in which members have actively been engaged around their continuously changing shared interest, i.e. technology, for over a decade. In line with the findings of previous research, the ongoing recruitment of members was considered to have motivated participation, since it contributed to preserving the critical mass needed for the survival of the community (S. A. Barab & Duffy, 2000; Lai et al., 2006; Preece, 2000; St-Onge & Wallace, 2003; Wenger et al., 2002). Furthermore, it was found that changes in technology, the use of which in education was the WiA community's shared interest, provided members with new topics (i.e. use of a new tool) around which to interact and lead discussions; this, in turn, was a positive factor for Webheads' ongoing interactions and participation in the community (Wenger et al., 2002).

Apart from the above themes, clearly defining the shared domain was proposed as a key factor that can increase members' commitment and voluntary participation. In addition, in line with the findings of previous studies, the ease of use of and accessibility of computer mediated communication (CMC) technologies have been found to facilitate and make member interactions easier (Lai et al., 2006; Preece, 2000; Schlager & Fusco, 2004; Wenger et al., 2002; Wenger et al., 2009). Finally, it was found that the creation of artefacts (i.e. the products and reification of member interactions) relating to members' teaching practice, also motivated teachers, lending further support to previous study findings (Hew, 2009; Hur & Brush, 2009; Wenger et al., 2009).

Last but not least, all of these factors contributed to the creation of a safe and valued (in terms of practice) environment for member participation in the community and can be argued to have allowed the process of legitimate peripheral participation (LPP; Lave & Wenger,

1991) to occur. Further, as they participated, members took on different roles within the WiA community; the most important role was perceived to be that of the moderator, who organized community events, regularly updated the community as well as engaged in discussions, and kept order in the community, which also supported the findings of previous studies (S. E. Booth, 2012; Gairín-Sallán et al., 2010; Hew, 2009; Wenger et al., 2002). Notably, even though the evidence suggested that members of the WiA considered meeting other members face-to-face as a positive factor, unlike in previous studies, this was not found to be a prerequisite for successful integration within the WiA community (Hutchinson & Colwell, 2012; Lai et al., 2006; Riverin & Stacey, 2008). This finding was related to the Webheads strong online presence (Preece, 2000; Wenger, 2001) and the availability of technologies that mirrored face-to-face meetings (i.e. Google+ Hangouts; a synchronous video chat technology).

6.3. Limitations and further research

An important limitation of the present study related to the generalizability of the findings. As we have seen in the literature review (Chapter 2), unlike the WiA community, there were several communities, which were not able to sustain their existence or in which the reported effects of participation generally remained at the level of technology knowledge and not necessarily technology integration. Therefore, although this research contributes to the body of knowledge regarding theory of OCoP and EFL teachers' technology professional development, the findings that have emerged from the study cannot be generalized to all OCoP contexts and/or EFL teacher populations. The case study approach adopted in the present study is the main reason behind the limited generalizability of the findings of this study. As has been discussed in the methodology (Chapter 3), the case study design has been criticized for emphasizing the uniqueness of the research, thus distinguishing the project as far different from others, which in turn makes it almost impossible to generalize the results (see Noor, 2008; Stake, 2000). Although the concept of generalizability is under discussion for case study research, Mertens (2010) discusses the notion of "transferability" by arguing that the responsibility of the researcher is to provide a "thick description" of the case so that the reader can decide whether or not the findings are transferable to other contexts (see also Section 6.4). Nevertheless, further case studies can be conducted with different teacher OCoPs that investigate teachers' professional development and/or factors affecting members' participation. This would contribute to the growing body of knowledge in the field of teacher OCoPs, which in the future can be used for a meta-analysis of that body of knowledge, leading to more generalizable findings.

In this mixed-method study, two of the three methods of data collection, namely questionnaires and interviews were a form of self-report data; the accuracy of which is dependent upon participants providing truthful and comprehensive answers to the questions asked. Naturally, individuals would want to give answers in the best light possible, a situation which has been referred to as social desirability bias (Crowne & Marlowe, 1964; Spector, 2004). Social desirability bias conveys the idea that a respondent would tend to provide answers which would cause them to look good. In an effort to minimize the effect of social desirability and encourage honest and truthful responses, the objective of the study was clearly communicated to the participants in the information page of the questionnaire and both before and during the interviews, and members were informed that their responses would be anonymized (see Appendices 6,7, and 10). Nevertheless, it is acknowledged that a social desirability bias might still be present in this study.

Another aspect of this study, which might be considered to be a limitation, relates to the nature of qualitative data (interviews and the community's public message history) that dominated and formed the basis of the findings in this study. From the very beginning of the data collection, it was my lived experiences, level of expertise, the social contexts I was in, and my understandings that helped me analyse the data. As Patton (2002) discusses, the different experiences and understandings of people might lead to different interpretations of the same phenomena across individuals. Therefore, a different researcher might interpret the same data in a different way. However, these are some of the well-known characteristics of qualitative research (Creswell, 2009; Denzin & Lincoln, 2005; Patton, 2002). Whilst, from the perspective of quantitative researchers, these aspects may seem like "limitations", in fact in qualitative research they are considered to be fundamental elements that make a study "qualitative". Nevertheless, steps to increase the confirmability of the findings have been taken. These included triangulation of the data from all three sources, which was used to support, challenge, and/or revise the conclusions that were reached. Furthermore, member checking was employed as a strategy in an effort to prevent misinterpretations of the data (Mertens, 2010). Additionally, it has been found that the findings relating to the perceived technology professional development (TPD) of EFL teachers in this study are similar to those of Kulavuz-Onal's (2013) nethnographic qualitative study, which further adds to the reliability of the findings of both studies. It is, nevertheless, worth noting that this does not change the fact that the findings in this study are interpretative rather than definitive.

On a different note, the document analysis that was carried out in this study was restricted to the WiA Yahoo! Group, due to the reasons explained in the methodology (Chapter 3) and it was the only data source that was used for defining each member's level of

participation. However, during the interviews it was found that communications took place between members through other WiA platforms as well as private messages, which I was unable to capture. Therefore, in spite of their contributions, members such as Julio and Amal, who were active members of the community, were considered to be peripheral due to the formula developed. Thus, a fellow researcher, who might want to apply the formula developed for identifying members' level of participation in the community, should consider modifying the formula by extending it to all platforms and CMC modes that the community under investigation utilizes.

One last limitation relates to the nature of participation in CoPs. It has previously been stated that the WiA community had emerged from a previous community (see C. M. Johnson, 2005) and, therefore, overlaps between the WiA and other communities were observed (see Section 4.2.2). Additionally, membership in WiA also seemed to have led to the creation of other communities (i.e. Raine's community for EFL teachers in South America, see Appendix 11). This is a natural characteristic of a CoP, because CoPs are widespread and an individual could belong to various CoPs at the same time (Wenger, 1998; Wenger et al., 2009). In conjunction with this, the participants in this study might have been members of other communities and/or participated in activities outside WiA which facilitated their professional learning and development. Thus, whilst evidence has been found to suggest that their perceived TPD was facilitated through members' participation in the WiA community, as exemplified in Cecilia's quote in "p. 208", participation in the WiA OCoP might not have accounted for *all* of the perceived TPD that was reported; to some extent it might have been affected by interviewees' interactions in different communities and/or networks. In future studies, a longitudinal study approach can be taken to study a new member's activities in the community as they move through stages of legitimate peripheral participation and become a core member of the community. During this process both his/her asynchronous and synchronous interactions can be collated for a period of one year or longer. Additionally, interviews at different stages of that member's participation in the community can be held and the teacher can be asked to provide video recordings of their teaching practice. Whilst, conducting such a study would be difficult and require a great degree of collaboration from the participant/s, it is not impossible and would provide valuable data. Findings from such a study might shed light on the processes that members go through as they move towards the centre and become core members. Furthermore, through the collection of recorded teaching sessions, such a study would provide evidence of participants' "actual" and not "perceived" technology professional development, as well as student outcomes.

As we have seen in the results (Chapter 4), a majority of the participants in the present study were non-native speakers of English. In their communication with the community, members need to use English to communicate, which at the same time can be seen as a reflection and practice of their content knowledge (CK). Additionally, since English is considered to be the *lingua franca* of the world (Jenkins, 2007; Kirkpatrick, 2007) and is mostly used to mediate communication among non-native speakers (Sharifian, 2009), a need to develop EFL learners' intercultural competence has been articulated by different bodies such as the European Council in recent years (Byram, Gribkova, & Starkey, 2002; Neuner, Parmenter, Starkey, & Zarate, 2003). Since the WiA community is an international body of EFL teachers from at least 26 different countries and given that participants were able to communicate effectively with members from other cultures, it can be considered that the members of the WiA group have developed their intercultural competence. Therefore, future studies may investigate in more detail how EFL teachers' CK and/ or intercultural competence may develop through communities such as WiA.

In this study, similar to previous studies, the role of the leader(s) was found to be an important factor for the survival of the WiA community. In fact, Vance has been the main facilitator of the community and was referred to as the one "keeping it alive". Furthermore, Vance was also characterized as a "democratic leader" who would allow members to "work things out" in case of problems. It is possible that these characteristics in Vance Stevens' leadership played a key role in the survival of the community; this raises a topic for further investigation, that is: "How does the personality of a leader help/hinder the longevity of a community?". Since this study is a case study and, as discussed before, the findings generated from this study are not generalizable, it would be interesting to investigate the role of the leader in other communities with different leaders.

One last suggestion for a future study relates to OCoP theory. As previously stated OCoPs are considered to be living organisms, implying the constant evolution of the community. Prior to undertaking the present study, the moderators of the Becoming a Webhead (BaW) EVO session decided to stop offering those sessions. At that point in time, BAW had been offered for the last 10 years and was considered to bring in new members to the community and contribute to the reproduction cycle of membership. However, a new EVO session titled "ICT4ELT" has recently been put together by the previous years' co-moderators of BaW EVO sessions and is now being offered in a similar way to the BaW EVO sessions. Future studies can investigate how this change in the WiA community affects its continuity.

6.4. Implications for teacher professional development

Through studying the Webheads in Action OCoP, it is considered that a better understanding of OCoPs as social learning environments has been reached. Whilst acknowledging the low generalizability of the findings in this study (see Section 6.2), it is considered that a "thick description" of the present case has been communicated to the reader through the presentation of the results (Chapter 4) that synthesized the findings from the three different data sources utilized (namely a survey, interviews, and document analysis), thus allowing the readers to judge the "transferability" of the findings (Mertens, 2010).

Based on the discussion of findings in the previous chapter (Chapter 5), the following suggestions are offered as points of consideration for teachers, teacher educators, and policy makers. Since each OCoP (the case studied in this research) is unique and has its own characteristics (Bourhis, Dube, & Jacop, 2005; Yin, 2014), the findings of this study should not be treated as a prescription, in isolation from the contextual factors that might be present , for creating and/or sustaining OCoPs.

To begin with, it is important that teachers voluntarily participate in OCoPs rather than being mandated to participate. In order to increase teachers' voluntary participation, we may work on creating opportunities to better inform teachers about the potential benefits of their participation in OCoPs (i.e. authentic, relevant, and flexible learning opportunities which are not constrained by time or location). In addition, this form of learning can be acknowledged and the time teachers are engaged with the community can be formally recognized by policy makers.

Since members can belong to more than one community and the premise of the OCoPs is that teachers will receive support in the areas they need help with, the creation of communities appealing to different areas of professional development could usefully be encouraged and the current OCoPs supported. Further, more efforts could be put into creating networks between communities and connecting the expertise and knowledge created in those communities.

The aim(s) of a community should be clearly defined in order to help teachers decide which community(ies) to join and artefacts (some, if not all) should be made publicly available so that the teachers themselves can evaluate the usefulness of the community for their professional development.

Each OCoP needs (a) leader(s) who is/are passionate about the community and networked with other communities. Since participation is voluntary, it is important that the leaders allow members to contribute to the community at the level and pace they feel comfortable with. However, to increase such contributions, leaders can support and acknowledge the informal roles that members take on in the community.

On a different note, since members join and leave online communities, it is important to develop mechanisms that would bring in new members. Such mechanisms can usefully provide induction and orientation to the community and its shared domain. This would help the development of a community identity allowing a better integration of new members. At this point, the leaders who are networked can publicize the community and contribute to this reproduction cycle.

A community needs a number of norms, either implicit or explicit, to guide member interactions. Those norms should not be too restrictive, rather should allow members to feel free and should be strong enough to allow members to feel safe and secure and increase their trust in the community. Such norms can allow the creation of an inclusive community atmosphere where members can share, not only their knowledge, but also develop social relationships that can contribute to building a sense of community and togetherness.

Regular activities in which members come together to discuss problems relating to their teaching practice can be organized to allow members to share their specific expertise with the community and find solutions to their problems through collegial dialogue and collaboration. Informal knowledge sharing opportunities such as online discussions in the community's public space can also be allowed for this reason. These will also increase members' trust in the community's knowledge and expertise.

Lastly, member interactions can be facilitated through computer mediated communication (CMC) technologies, which are perceived to be easy to use and integrated into members' daily lives. It is not only the technology but also the community itself that evolves in time. Therefore, it is important to have technology stewards (generally leaders of the community) who are aware of the needs of the community in relation to technology and introduce new technologies that would meet the community needs. Where possible, videoconferencing technologies can be used to provide a sense of real life gatherings and if possible real life face-to-face meeting can be organized to strengthen the sense of community and the bonds created in the online environment.

6.5.   Contribution to knowledge

In conclusion, the present study has made a number of significant contributions to the field of research into OCoPs and teacher professional development.

First, the present study provided evidence that the Webheads in Action group, in its 13th year of existence, can still be considered to be an OCoP. When compared to Jonson (2005) and Kulavuz-Onal's (2013) findings, the developments within the community, with regards to the technologies they discuss and use for communication with each other, and the ongoing recruitment of members to the community, suggest that the community has not only sustained itself but also matured over the course of the last decade. Thus, the findings of this study make a novel contribution to the theory of OCoPs, by providing empirical findings to support the concept of OCoP life cycles; a concept which has been proposed but which has not been validated (as noted by Lai et al., 2006).

Secondly, the present study also contributes to the growing body of research investigating teacher OCoPs. To date only a handful of studies have been conducted to investigate factors affecting teacher participation in online teacher communities (S. E. Booth, 2012; Hew, 2009; Hew & Hara, 2007) and most of the previous studies in this field investigated communities that utilized computer-mediated communication (CMC) tools such as listservs, wikis, and online discussion forums. The WiA community (the case in the present study) has been found to be utilizing more recent technologies, such as videoconferencing. As such, unlike previous studies, the present study demonstrated that meeting other members in face-to-face settings is not perceived to be a prequisite for the success of teacher OCoPs, due to the development of technologies that mirror face-to-face communication. This study also highlighted the importance of socio-affective factors and building a sense of community for online teacher communities. Different from previous research studies, however, the way in which a sense of community had been built was unfolded (i.e. an initiation process) through the case of the WiA community. Another finding that can be considered to be a novel contribution relates to the fact that teachers in the WiA community were geographically dispersed around the world and were from different countries. It was found, however, that in spite of their differences members were able to continue their participation thanks to the norms that guided interactions in the community. Thus, the finding that norms such as "avoiding political and religious discussions" are crucial for cosmopolitan teacher communities can be considered to be another novel contribution of this study.

Thirdly, the present study contributed to research investigating teacher TPD through an OCoP approach. To date only a handful of studies were found to investigate this issue

(Guzey & Roehrig, 2009; Kulavuz-Onal, 2013; Scott & Scott, 2010; Vavasseur & MacGregor, 2008; Zygouris- Coe & Swan, 2010). Similar to those studies, this study also found that an online community approach can successfully be used for teachers' professional development. However, in contrast to previous studies, members' technological pedagogical and content knowledge (TPACK) scores and their levels of community participation were compared (i.e. peripheral vs active vs core members). The analysis yielded a significant difference, which suggested that the more a member participated and interacted with other members, the higher his/her TPACK was. This finding underlines the importance of collaboration in teacher professional development.

Lastly, the present study also contributes to the field of research on the TPACK framework. A number of generic TPACK questionnaires, which could have been used to measure WiA members' perceived TPACK, were found to exist in the literature (i.e. Schmidt et al., 2009). However, it is important to note that content knowledge (CK) plays a significant role in understanding the TPACK framework and CK differs substantially from one subject to another, suggesting the need for specific applications of the TPACK framework within different subject areas (Koehler et al., 2012). No previous studies were found to apply the TPACK framework within the EFL context. Therefore, the development of the EFL-TPACK questionnaire, the validity and reliability of which was established by adopting a number of different strategies explained in Section 3.4.1. and Appendix 1, was another unique contribution of this study. As such, the EFL-TPACK questionnaire developed in this study can be used in a number of ways; 1) as a self-assessment tool for teachers to analyse their skills of technology integration, and 2) as a pre and post test by researchers and/ or teacher educators who wish to assess the perceived effects of teacher technology professional development programmes they implement. Last but not least the questionnaire can be adapted to be used in English as a second language (ESL) and modern foreign languages (MFL) contexts.

6.6.   One final remark…

Prior to sending an invitation to the community to join the Learning2gether session, in which I was going to inform WiA members about the results of this study, I came across a message thread where an interactive map had been created for members to pinpoint their locations around the world, in order to make it easier to arrange face-to-face meetings. In the middle of this map a pin was highlighted that had a link to a song that had been written by one of the members. The lyrics of the Webheads theme song below emphasize members' sense of belonging to the community in spite of its diversity, and their willingness to collaborate and help each other by providing professional as well as social support in a timely manner. This

leaves me with no more words to add but: "Thank you Webheads!" (Full song is available on www.bit.ly/webheadthemesong).

A Webheads Theme Song

Webheads – all over the world
Webheads – we're all over the world
24/7 – we're online
It doesn't really matter – whatever the time
Someone's there to answer the CALL

CHORUS

You want to know how to do it right
Or maybe you're lonely in the middle of the night
Someone's there to answer your CALL

CHORUS

You want to join your class up across the world
Or you want an expert to talk to them live
Someone will answer your CALL

CHORUS

You're going on a journey to a foreign land
Want to meet a friend there to show you around
There'll be someone there to answer your CALL

CHORUS

Learning together – sharing our views
Living together – sharing our news
Always someone there – on the same wavelength

Appendices

Appendix 1. Designing and validating a questionnaire for assessing English as a foreign language (EFL) teachers' Technology Pedagogy and Content Knowledge (TPACK)

Abstract

The TPACK framework has become popular in guiding and/or measuring teachers' technology professional development. According to this framework a teacher's ability to integrate technology in their instruction is determined by the dynamic interplay of TPACK components which are; 1) Technology Knowledge (TK), 2) Pedagogy Knowledge (PK), 3) Content Knowledge (CK), 4) Pedagogical Content Knowledge (PCK), 5) Technological Pedagogical Knowledge (TPK), 6) Technological Content Knowledge (TCK), and 7) Technological Pedagogical and Content Knowledge (TPACK). This paper reports on the development and validation of EFL-TPACK, a questionnaire adapted from TPACK, which is designed to specifically assess EFL teachers' perceived levels of TPACK. Development and validation of the questionnaire involved: 1) review of literature related to the professional knowledgebase of EFL teachers to create the initial item pool (76 items) 2) establishing content validity with a panel of 36 CALL experts (revised questionnaire with 65 items) 3) establishing construct validity through factor analysis (50 items, 6 factors) and discriminant validity and reliability (alpha ranged from .81 to .89 across the factors). The findings suggest that the EFL-TPACK questionnaire is a valid and reliable tool and is sensitive enough to distinguish between different groups of EFL teachers.

Key words: TPACK, English as a foreign language (EFL), Teacher Education, Technology,

1. Introduction

Technology pedagogy and content knowledge (TPACK) is yet one of the many frameworks that have been developed in order to better understand technology integration in educational settings. There are three main elements that constitute the TPACK framework which are; technology, pedagogy, and content. Mishra and Koehler (2006) concurred that successful technology integration into education requires an understanding of how technology and pedagogy is related to the content being taught. TPACK has become a widely investigated framework since its introduction and a considerable amount of literature both theoretical and empirical about the framework has accumulated over the years (*see* Chai et al., 2013; Koehler, Shin, & Mishra, 2012; Voogt et al., 2012) . Researchers related the popularity of the TPACK to the simplified explanation of the framework and the flexibility it allowed researchers to adapt its use into different contexts; however, it has been asserted that this simplistic view prevents researchers from understanding the complex relationships between and among the components of the framework and establishing the boundaries among these elements (Angeli & Valanides, 2009; Graham, 2011). Recent reviews of literature on TPACK, nevertheless, acknowledge the potential value of the framework and call for researching content and context specific applications of the TPACK framework in order to compare whether these applications can help establish the boundaries between the components of the framework, it is also signalled that developing valid and reliable tools for measuring TPACK is necessary (Chai et al., 2013; Koehler, Shin, & Mishra, 2012; Voogt et al., 2012).

This study is nested within the wider PhD project of the lead researcher which investigates professional development of English as a foreign language (EFL) teachers in the use of technology as a result of their participation in an online community of practice. Since the subjects of the study were considered to be online teachers from different geographical locations all over the world, it was deemed necessary to use a survey questionnaire method which was considered to allow reaching a wider population and collecting data in a relatively fast, cost effective, and reliable manner compared to other methods such as observation and interviews. The questionnaire was aimed to be used in order to measure perceived TPACK levels of EFL teachers who participate in an online community of practice and compare whether there was a significant difference between different levels of participation such as peripheral or active participation. Various approaches have been adopted in order to develop the questionnaire and ensure its validity and reliability.

2. Literature Review

2.1. TPACK and its components

TPACK is a framework that extends Shulman's (1986) teacher knowledge framework addressed as 'pedagogical content knowledge (PCK)' through the addition of the 'technology' component (Mishra & Koehler, 2006). According to this framework a teachers' ability to integrate technology in their teaching is determined by the dynamic interplay of the TPACK components (*see* Figure A).

There are three main components of the TPACK which are represented as circles; Technology Knowledge (TK), Content Knowledge (CK), and Pedagogy Knowledge (PK). TK refers to the skills that required for being able to operate and work with technologies. In Koehler and Mishra's (2009) definition TK is a dynamic component because technology has a fast pace of change. PK can be described as the knowledge about methods and processes of teaching and learning (Mishra & Koehler, 2006). PK involves understanding of how students learn and knowledge of classroom management techniques, lesson planning, and assessment. CK stands for the knowledge of the subject matter that teachers are expected to teach (Mishra & Koehler, 2006). For example, the content that is taught/ learned in a history class would be different than the content in a mathematics class.

The interplay of these main circles constitute the remaining components of the TPACK framework; Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical and Content Knowledge (TPACK). PCK includes the transformation of learning content in a way that would make it easier to be learned by students. The teacher interprets the subject matter, finds multiple ways of teaching the subject matter and then tailors the teaching subject and chooses methods in a way that would suit the needs of the learners (Shulman, 1986). TCK is described as the "knowledge about the manner in which technology and content are reciprocally related" (Mishra & Koehler, 2006, p. 1028). Teachers need the mastery of not only the content they teach but also awareness of how technology could enhance or constrain the teaching of the subject matter. TPK is the understanding of how the use of particular technologies in particular ways can change teaching and learning in general (Koehler & Mishra, 2009). This includes an understanding of the existence of a variety of technologies that could be used for a particular task and the ability to choose from a variety of tools based on their affordances and/or constraints. TPACK is in the center of the three-circle diagram where each circle (technology, pedagogy, and content) intersects. TPACK forms the basis of effective education with technology (Koehler & Mishra, 2009). It requires an understanding of how to use

technology in a meaningful and pedagogically sound way in order to be able to provide the opportunities for learners so that they could better understand the content to be learned (Koehler & Mishra, 2009). Last but not least in their update of the framework Koehler and Mishra (2008) added the 'context' as a crucial part of the framework and argued that teaching with technology is not isolated but situated in teachers' teaching contexts which included the students, school, available infrastructure, and environment.
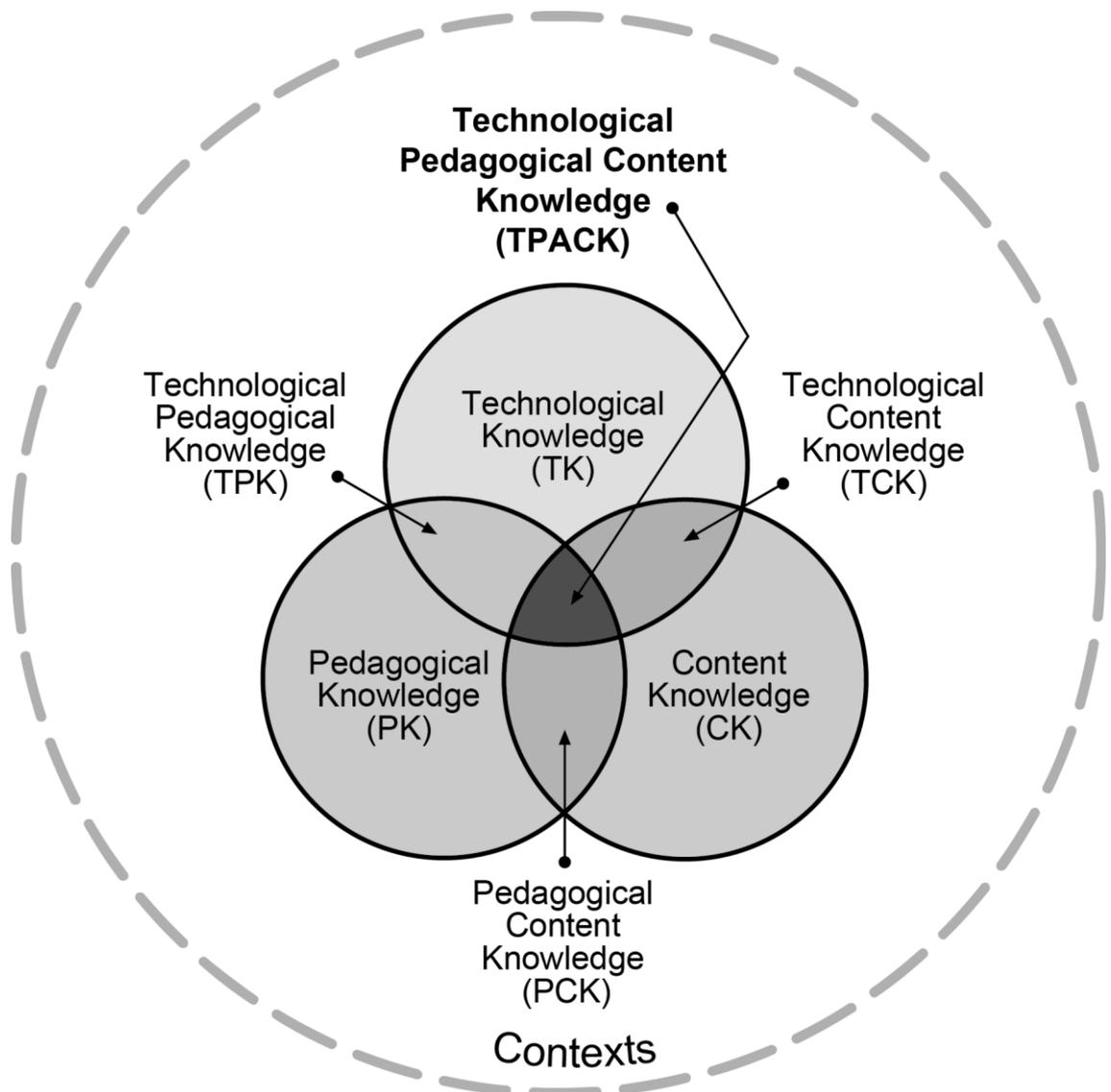
Figure A. The framework of TPACK (source: http://tpack.org/). Reproduced by permission of the publisher, © 2012 by tpack.org

2.2.   Critiques of the TPACK framework

While there have been various critiques of the framework, for the purposes of this study the discussion in this section will focus on the critiques about the definition of the framework components and the validity and reliability of the tools developed for measuring TPACK (for a detailed critique of the framework *see* Graham, 2011).

Graham (2011) states that in order to create a coherent theory all of its components need to be clearly defined and Angeli and Valeniedes (2009) maintain that clear definition of the components will increase the discriminating value of the framework. Both Graham (2011) and Angeli and Valeniedes (2009) concur that TPACK components in their current form are not well defined. It can be argued that this in return makes it difficult for the TPACK components to be clearly reflected in the measurement tools. For example, Archambault and Barnett (2010) developed a 24-item TPACK survey that they piloted with 596 online teachers across the USA and they were able to identify only three constructs of the framework. CK, PK, and PCK loaded as one factor, TCK, TPK, and TPKC as another, and it was only TK that loaded as a distinct component. It has been implied that participants taught different subjects such as mathematics, science and English and the survey items were designed as generic items in order to tailor the needs of the participants involved. As such the content knowledge related items did not specify a particular subject area and used terms such as 'concept' and 'topic' to refer to content. Similarly, Koh et al. (2010) attempted to validate a TPACK questionnaire with the participation of 1185 Singaporean preservice teachers. They were able to identify five factors that they named TK, CK, Knowledge of Teaching with Technology (KTT that included TCK, TPK, and TPACK items), Knowledge of Pedagogy (KP that included PK and PCK), and Knowledge from Critical Reflection (KCR). Similar to Archambault and Barnett (2010), Koh et al. (2010) did not specify a particular subject area and used terms such as 'Curriculum Subject 1' and 'Curriculum Subject 2' to refer to content. In a slightly different study that aimed to develop a TPACK instrument specific to web related teaching, Lee and Tsai (2010) created a 30-item questionnaire to measure six factors about the web-based TPACK that they administered to 558 Taiwanese teachers. Web- Pedagogical Content Knowledge (WPCK) and Web- Pedagogy knowledge (WPK) merged as one factor they named as WPCK. Lee and Tsai (2010) also used generic terms such as 'course content'. There were two studies (Şahin, 2011; Schmidt et al., 2009) that were able to create questionnaires addressing the seven components of the TPACK framework. However, they were considered as not fully validated (*see* Chai et al., 2013). In line with above statements Koehler, Shin and Mishra (2012) acknowledge that CK plays a significant role in understanding the TPACK framework and add that the content of different subjects would differ, which in return signals for subject specific applications of the

framework, yet very few studies has been conducted in subject specific applications of the framework (*see* Chai et al., 2013; Koehler, Shin, & Mishra, 2012; Voogt et al. 2012).

Another critique that researchers address is the validity and reliability of the TPACK measurement tools developed. Koehler, Shin, and Mishra (2012) state that it is important to develop the tools that would successfully measure the components of the TPACK framework and provide statistics on the validity and reliability issues of the tools that have been developed. According to their results over 90 % of the tools were not successful in establishing validity and about 69 % were not able to address reliability issues. The review of literature returned no results of a valid and reliable questionnaire developed for measuring EFL teachers' perceived levels of TPACK and this study aims to fill in this gap.

3. Methods, development and validation of the questionnaire

Development and validation of the questionnaire involved:

a) Construction of an item pool
b) Establishing content validity
c) Establishing construct validity, discriminant validity, and reliability.

Ethical approval has been granted prior to conducting each phase of data collection by the university with which the researchers are affiliated with.

3.1. Constructing the item pool

An initial pool of 76 items was constructed from the analysis of relevant literature such as CALL reviews, general and language teaching specific TPACK publications, and standards on technology and language teacher education (*see* Table 1). Each item was given a code and a number to represent the section that the item belonged to and its order (see Attachment 1).

Table 1. Sources used to construct the item bool by TPACK dimension

Source		Area of Knowledge		
		Technology	Pedagogy	Content
CALL Reviews	Levy (2009)	✓		
	Macaro et al. (2012)	✓		
	Stockwell (2007)	✓		
Standards	ACTFL (2002)		✓	✓
	ISTE (2008)	✓	✓	
	Kelly and Grenfell (2004)	✓	✓	✓
	Newby et al. (2007)	✓	✓	✓
	TESOL (2008)	✓	✓	✓
	UCLES (2010)	✓	✓	✓
TPACK publications	Schmidt et al. (2009)	✓	✓	✓
	van Olphen (2008)	✓	✓	✓

3.2. Establishing content validity

Content validity refers to the degree of overlap between an instrument and the theoretical construct which it is designed to measure (Lawshe, 1975). Lawshe's (1975) widely used quantitative approach, which is based on the evaluation of instrument items by a panel of experts, was adopted in this study.

The editorial board of nine peer reviewed CALL journals (see Attachment 2) were invited to participate in this phase of the validation of the questionnaire. 36 of those experts approached accepted to participate in the study (see Acknowledgements for a list of those who wished to be acknowledged).

For each dimension of TPACK participants were presented with Koehler and Mishra's (2009) and Mishra and Koehler's (2006) definition of the dimension followed by the items from the pool relating to that dimension. Following Lawshe (1975), experts were asked to rate each item on a three point-scale with the following anchors: 'essential', 'useful but not essential', and 'not necessary'. In addition, the experts were given the opportunity to make open comments on each dimension.

The Content Validity Ratio (CVR) was calculated for each item using the following formula, where n_e corresponds to the total number of experts who rated an item as 'essential' and N_2 corresponds to half of the total number of experts who rated the item:

$$CVR = (n_e - N_2)/ N_2$$

Then the resulting values were compared with Wilson et al.'s (2012)[62] critical values (CV) that needed to be achieved for validation of an item at $p< .05$ (two-tailed).

The results suggested that 55 out of the 76 items passed the validation criteria (*see* Table 2 and Appendix 1). Pedagogy Knowledge and Content Knowledge sections had the highest mean CVR values whereas *Technology Knowledge* section received the lowest mean CVR and included the least number of validated items. Limiting Technology Knowledge items to technologies used in language learning did not seem to be appropriate since most of these items did not pass the validation criteria. Moreover, some experts provided feedback criticizing that there was underrepresentation of TK:

> "Key components not addressed: knowledge of operating systems, computer hardware, how to install and remove peripheral devices, install and remove software programs, create and archive docs...you have only selected use of applications. Construct underrepresentation here is a real problem" (Higher Education, CALL Researcher).

Table 2. Mean CVR values for Expert Analysis of EFL- TPACK Questionnaire

Survey Section	Number of items within section	Number of validated items	Mean CVR
Pedagogy Knowledge (PK)	15	14	0.683
Content Knowledge (CK)	9	8	0.678
Technological Pedagogical Knowledge (TPK)	8	7	0.617
Pedagogical Content Knowledge (PCK)	12	9	0.513
Technological Content Knowledge (TCK)	9	7	0.388
Technological Pedagogical and Content Knowledge (TPACK)	9	5	0.297
Technology Knowledge (TK)	14	5	0.099
Total	55 out of 76	55	0.476

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[62] Wilson et al. (2012) recalculated the critical values that needed to be achieved in Lawshe's (1975) work in an effort to correct the anomaly they identified.

The definition of TK as explained by Mishra and Koehler (2006) and Koehler and Mishra (2009) was compared to the items in the questionnaire and new items were written to be included in TK section based on the feedback received by experts. Additionally, the item about multimedia technologies (A8) was broken down into multiple items since it had encompassed a range of different technologies and could potentially lead to ambiguity. Items B4 and B5 were considered as overlapping items and they were merged as a new item B16 (*see* Table 3 for the list of added items). Items B2, B12, C9, E5, F6, and G6 were reworded based on the feedback received from the experts. Even though they did not pass the validation criteria items D9, F7, G5 and G8 were reworded based on expert feedback and were included in the revised version of the questionnaire since it was considered that they might not have been considered essential due to the wording of those items. After adding new items, revising existing ones, and eliminating the ones that did not pass the validation criteria, the revised survey consisted of 65 items that was prepared for the next stage of piloting with English language teachers.

Table 3. Items that were added after the content validation stage

Section	Item Code	Item
Technology Knowledge	A15	I know about basic computer hardware (i.e. CD-Rom, mother-board, RAM) and their functions
	A16	I know how to save data into/from a digital device (i.e. flash disk, USB stick, CD)
	A17	I know how to use generic office applications (i.e. Word, PowerPoint, and Excel)
	A18	I know how to play audio and video files on my computer
	A19	I know how to record audio files (i.e. using a Dictaphone)
	A20	I know how to record video files (i.e. using a video camera)
	A21	I know how to create images on my computer (i.e. using Windows Paint)
	A22	I know how to edit images on my computer (i.e. using Photoshop)
Pedagogy Knowledge	B16	I can facilitate learning through creating opportunities for individual, partner, group and whole class work

3.3. Establishing construct validity, discriminant validity, and reliability

In the second stage of the study, the questionnaire was administered online and the invitation to participate in the questionnaire was disseminated through the use of social media platforms such as Facebook, LinkedIn, and Twitter. A total of 542 English language teachers from 72 different countries over the world participated in this stage of the survey. The participants answered the questions in the 65-item revised version of the questionnaire using the following five-level Likert scale:

1) Strongly disagree
2) Disagree
3) Neither agree nor disagree
4) Agree
5) Strongly Agree

The questionnaire also included items addressing demographic information such as whether the participant is a native or non-native speaker of English, how long they have taught English, and how often they used technology in their teaching.

3.3.1. Construct Validity

It is important that the researcher's perception of the construct be similar to what is generally understood from the construct (Cohen et al., 2007). Exploratory factor analysis (EFA) was used in order to establish the construct validity of the questionnaire and evaluate the extent to which the questionnaire measured the intended dimensions of the TPACK framework (Field, 2009; Thompson, 2004). Sample size is an important factor in conducting factor analysis. However, there are differences in the literature regarding the sample size required for conducting factor analysis (Costello & Osborne, 2005; Field, 2009). Therefore, Keiser-Meyer-Olkin (KMO) was used as an alternative method in order to test whether the sample size was adequate for factor analysis (Beavers et al., 2013; Field, 2009; Thompson, 2004). Prior to running the KMO test four items (B1, D2, E2, F1) which had been reversed in an attempt to prevent mechanical responses were left out of the analysis stage since it was argued that reversed items tend to have lower reliability and smaller factor loadings that can affect the factor structure (Weijters, Geuens, & Schillewaert, 2009). The KMO measure verified the sampling adequacy for the analysis; KMO = .92 which was considered as superb by Hutcheson and Sofroniou (1999). Barlett's test of sphericity (chi square= 17343.140; df= 1830; p < 0.001) indicated that correlations between items were sufficiently large for factor analysis. Out of two

possible rotation techniques available, oblique rotation method was preferred to orthogonal rotation since the latter did not allow for factors to correlate. It has been argued that:

> "[O]rthogonal rotations are a complete nonsense for naturalistic data, and certainly for any data involving humans (can you think of any psychological construct that is not in any way correlated with some other psychological construct?) As such, some argue that orthogonal rotations should never be used" (Field, 2009, p.644).

Therefore, Promax (an oblique rotation) was chosen to be applied since it allowed the extracted factors to correlate and it was considered that the subsections of the TPACK were interrelated.

Another important decision that needed to be taken was the criteria for the retention of factors. There are different methods that could be utilized for this purpose such as Kaiser Criterion, scree test, and parallel analysis (Beavers et al. 2013; Costello & Osborne, 2005; Field, 2009). After analysing the results from all three methods and based on Guadagnoli and Velicer's (as cited in Stevens, 2009) criteria of a reliable factor, a six factor solution was generated. The cut-off value for keeping an item within a factor was decided to be 0.4 (Field, 2009; Stevens, 2009). Next, 8 items (namely A2, B14, B15, C1, C4, E3, E4, and E5) were eliminated due to either not loading to any factor or having a loading below 0.4 onto a factor. When the results were analysed, it was found that PK and PCK merged together as a single factor and three PK items (B7, B8, and B13) that respectively overlapped with PCK items (E8, E6, E9) within the same factor were further eliminated in an effort to equalize the number of variables in each factor. Consequently, the six factor result was produced with 50 items. Those six factors were identified to represent the following knowledgebase:

- Factor 1 represents pedagogical content knowledge (PCK) (12 items);
- Factor 2 represents technological pedagogical and content knowledge (TPACK) (7 items);
- Factor 3 represents technology knowledge (TK) (11 items);
- Factor 4 represents technological content knowledge (TCK) (7 items);
- Factor 5 represents content knowledge (CK) (6 items); and
- Factor 6 represents technological pedagogical knowledge (TPK) (7 items).

The six factor solution that was gained counted for 53 % of the variance, which has been claimed to be acceptable for social science studies (Dunteman, 1989; Netemeyer, Bearden, & Sharma, 2003) (see Attachment 3 for factor loadings and total variance explained).

Item loadings within their related factors ranged between 0.466 and .865 and factor correlations ranged between .144 and .595 (see Table 4 for factor correlations).

Table 4. Factor Correlation matrix

Factor	PK/PCK	TPACK	TK	TCK	CK	TPK
PK/PCK	1.00	.419	.251	.367	.445	.406
TPACK		1.000	.299	.499	.144	.595
TK			1.000	.329	.237	.326
TCK				1.000	.181	.516
CK					1.000	.201
TPK						1.00

3.3.2. Discriminant Validity

One of the methods for establishing discriminant validity is to examine differences between groups and their score within the measurement tool being validated (Matthews & Kostelis, 2011). In this stage of the study, the demographic data gathered were used as the criteria to compare the scores of participants within different scales of the TPACK instrument.

To begin with, *Content Knowledge* subsection results of participants who reported to be a native or non-native speaker of English were compared. Participants' teaching experience was another category of the demographic data collection, participants were asked to provide information on how long they had taught English and their scores on the *Pedagogical Content Knowledge* subsection were compared to find out whether a significant difference existed. Last but not least, participants were also asked to provide information on how frequently they used technology in their teaching and their scores on *Technology Knowledge, Technological Content Knowledge, Technological Pedagogical Knowledge, and Technological Pedagogical and Content Knowledge* were matched for comparison. Non-parametric tests were used in this process since the data was not normally distributed and the number of participants in different categories was not equal (Field, 2009) (see Table 5).

Table 5. Tests of normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CK	.274	542	.000	.632	542	.000
PCK	.187	542	.000	.802	542	.000
TK	.248	542	.000	.616	542	.000
TCK	.143	542	.000	.877	542	.000
TPK	.162	542	.000	.835	542	.000
TPACK	.153	542	.000	.838	542	.000

Content Knowledge of participants who reported that they were native speakers of English (*Mdn* = 0.46) differed moderately from that of participants who reported to be non-native speakers of English (*Mdn* = 0.36), *U* = 18410, *z* = −6.14, *p* < .001, *r* = −.27 (see Table 6).

Table 6. Mann-Whitney U test result for comparing CK scores of native and non-native speaker participants

Content Knowledge (CK)

Ranks

Participant	N	Grouped Median	Mean Rank	Sum of Ranks	Test Statistics	
Native	144	0.46	335.65	48334.00	Mann-Whitney U	18410
Non-native	391	0.36	243.08	95046.00	Wilcoxon W	95046
Total	535				Z	-6.144
					Asymp. Sig. (2-tailed)	.000

Participants were asked to report how long they had been teaching and according to their response they were grouped in one of the following five groups; (1) 0-4 years, (2) 5-9 years, (3) 10-14 years, (4) 15 to 19 years, and (5) 20+ years. Participant's teaching experience significantly affected their scores in *Pedagogical Content Knowledge* section of the questionnaire [*H* (4) = 45.54]. Jonckheere's test revealed a significant trend in the data: the higher the teaching experience of a participant is, the higher their PCK score has been, *J* = 68161.50, *z* = 6.69, *r* = .29 (*see* Table 7).

Another demographic information that was collected from participants was about their frequency of technology use in their teaching and participants were grouped into the following groups based on their responses; (1) never, (2) in some lessons, (3) in most lessons, and (4) every lesson. Participants' frequency of technology use significantly affected their scores on all technology related sections of the questionnaire namely: TK, TCK, TPK, and TPACK [*H* (3) = 39.41, 51.78, 73.83, and 64.78 respectively]. Jonckheere's test revealed a significant trend in the data: the more frequently a participant used technology in their teaching the higher their scores were in TK, TCK, TPK, and TPACK (*J* = 57329, 59404, 61692, and 61124; *z* = 6.11, 7.19, 8.38, and8.09; *r* = .26, .31, .36, and .35 respectively) (see Table 8).

Table 7. Kruskal- Wallis and Jonckheere-Terpstra test results for comparing PCK scores with participants' teaching experience

Pedagogical Content Knowledge (PCK)

Ranks

Teaching experience	N	Mean Rank	Kruskal- Wallis Test Statistics		Jonckheere-Terpstra Test	
0-4 years	122	203.23	Chi-Square	45.54	Observed J-T Statistic	68161.50
5-9 years	139	239.35	df	4	Mean J-T Statistic	54948.50
10-14 years	115	291.40	Asymp. Sig.	.000	Standard Deviation of J-T Statistic	1976.20
15-19 years	74	303.82			Standard J-T Statistic	6.69
20+ years	78	328.17			Asymp. Sig. (2-tailed)	.000
Total	528					

Table 8. Kruskal- Wallis and Jonckheere-Terpstra test results for comparing TK, TCK, TPK, and TPACK scores with participants' frequency of technology use

Ranks

Technology use	N	Mean Rank			
		TK	TCK	TPK	TPACK
Never	5	108.60	126.40	121.40	49.40
In some lessons	171	200.83	214.85	207.79	197.87
In most lessons	265	292.22	292.39	291.13	295.34
Every Lesson	99	340.89	315.30	331.13	340.63
Total	540				

Kruskal Wallis Test Statistics

Chi-Square		39.41	51.78	73.83	64.78
df		3	3	3	3
Asymp. Sig.		.000	.000	.000	.000

Jonckheere-Terpstra Test

Observed J-T Statistic		57329	59404	61692	61124
Mean J-T Statistic		45577	45577	45577	45577
Standard Deviation of J-T Statistic		1923	1923	1923	1923
Standard J-T Statistic		6.111	7.190	8.380	8.08
Asymp. Sig. (2-tailed)		.000	.000	.000	0.000

3.3.3. Reliability

Cronbach alpha was used as a method for calculating the internal consistency of the six subsections of the TPACK questionnaire that was modified after the factor analysis. Each TPACK subsection was analyzed for whether the reliability would increase if an item within that scale was omitted (Fields, 2009). However, the analysis suggested that there would not be significant changes in the subsections when particular items were omitted (the increase/ decrease in alpha levels were less than 0.05). Therefore, no items were omitted. The results suggested that the alpha levels of TPACK subsections varied between .81 and .89 which is considered to be 'good' and the overall alpha level of the whole questionnaire was .94 which is considered to be 'excellent' (George & Mallery, 2003) (see Attachment 3).

4. Discussion and conclusions

Six components of the TPACK framework emerged as a result of factor analysis. While there were some overlap between the items written in PK and PCK, attention was paid in order to write PCK items with a clear focus on language teaching (see Attachment 1). EFL teachers did not seem to be able to distinguish between the two and as a result they merged together as one factor which was named as PCK. In fact, that was a common problem that repeated itself across other TPACK validation studies (see Archambault & Barnett, 2010; Koh et al., 2010; Lee & Tsai, 2010). Similar arguments regarding the overlap between PK and PCK have been echoed in the academia for many years (see Graham, 2011 for a more detailed discussion on the topic).

As with most research studies, this study has its own limitations. To begin with, access to technology could differ across and/ or within countries, regions, or cities. While some EFL teachers could benefit from the availability of having computer labs in their school, computers in classrooms, and high speed reliable internet access others may lack the technology resources. Therefore to address this issue a majority of the questionnaire items were worded as "I can" and "I know" self-efficacy statements in order to demonstrate that EFL teachers are potentially able to conduct the activities listed whilst acknowledging that in reality they might not be able to due to lack of resources in their specific language teaching environments and/ or self-report bias. However, there has been studies suggesting self-reports of self-efficacy to be able to predict actual teacher behaviour (see for example Tschannen-Moran & Hoy, 2001) . Additionally, the questionnaire was distributed and completed via the internet and social media. Therefore, it is important to note that the teachers who participated in the study may be more representative of teachers who are already motivated to use technology and/or have access to technology. As a result the participant sample was skewed. To address this issue the questionnaire could be conducted via a paper and pen survey in multiple contexts (countries) in order to corroborate findings and prevent culturally bias.

The major contribution of this study is the development of a valid and reliable questionnaire that is aimed to measure the perceived TPACK levels of EFL teachers (see Table 9). The use of brand and software names in the TK items was avoided in order to address the fast changing nature of technology. Example technologies, however, were provided in brackets to help respondents. Those examples can easily be changed according to the needs of the time in future iterations of the questionnaire. Whilst developed for EFL teachers, the survey can

also be adapted for use in English as a second language (ESL) and Modern foreign language (MFL) teaching contexts. Teachers can use the questionnaire as a self-assessment measure. For example, a sample feedback received from one of the participants is provided below;

> "I really appreciate this kind of surveys because it allow us to analyse our knowledge in the different areas of English Teaching and remind us what tools are important and/or interesting as support in the activities inside the classroom nowadays" (a Venezuelan high school female EFL teacher).

Furthermore, the questionnaire could be used as a pre- and post-test by researchers and/or teacher educators who wish to assess the perceived effects of the training programmes they implement. Last but not least the items in the questionnaire can be transformed into a rubric assessment form and can be used in observing EFL teachers' teaching practices with technology.

Table 9. Item list of the final version of the questionnaire (6 factors, 50 items)

TK	CK	PCK	TCK	TPK	TPACK
A5	C4	B2	D1	F2	G1
A10	C5	B3	D3	F3	G3
A14	C6	B6	D4	F4	G4
A15	C7	B9	D5	F5	G5
A16	C8	B11	D6	F6	G6
A17	C9	B12	D7	F7	G7
A18		B16	D8	F8	G8
A19		E6	D9		
A20		E7			
A21		E8			
A22		E9			
		E10			

Acknowledgements

Attachment 1. Initial Item Pool for the Questionnaire (76 items) with results of content validation

Item Code	Item	N Essential	Content Validity Ratio
Technology Knowledge			
A1	I know how to solve my own technical problems †	19	0.055
A2	I can learn how to use technology easily †	25	0.388
A3	I keep up with new technologies †	20	0.111
A4	I frequently play around with technology †	13	-0.277
A5	I know how to use computer mediated communication (CMC) technologies (e.g. email, chat)	31	0.722
A6	I know how to use concordancers	7	-0.611
A7	I know how to use off the shelf courseware (educational material intended as kits for teachers or trainers or as tutorials for students, usually packaged for use with a computer)	16	-0.111
A8	<u>I know how to use multimedia (e.g. graphics, texts, audio, and video)</u>	30	0.666
A9	I know how to use online learning environments (e.g. Moodle, Blackboard, and VLE)	23	0.277
A10	I know how to use online dictionaries	24	0.333
A11	I know how to use an interactive white board (IWB)	7	-0.611
A12	I know how to use mobile technologies (e.g. tablet computing, smart phones)	20	0.111
A13	I know how to use authorware (customisable software that allows users to generate their own content by integrating different types of media such as graphic and text, e.g. hot potatoes)	14	-0.222
A14	I know how to use web 2.0 technologies (e.g. blogs, social networks, and wikis)	28	0.555
	Mean CVR for TK		0.099
Pedagogy Knowledge			
B1	I know how to maintain classroom management †	33	0.833
B2	*I can facilitate learning by creating a comfortable environment in which learners are willing to take risks*	30	0.666
B3	I can react supportively to learners' interaction ‡	35	0.944
B4	<u>I can manage activities for individual, partner, group and whole class work ‡</u>	34	0.888
B5	<u>I can create opportunities for individual, partner, group and whole class work ‡</u>	33	0.833

Item Code	Item	N Essential	Content Validity Ratio
B6	I can adapt my teaching style to different learners †	33	0.833
B7	I can adapt my teaching based upon what students do not understand †	35	0.944
B8	I can use a wide range of teaching approaches in a classroom setting	29	0.611
B9	I can select teaching materials appropriate to the needs of learners ‡	33	0.885
B10	I am familiar with common student understandings and misconceptions †	20	0.111
B11	I can assess student learning in multiple ways †	27	0.500
B12	*I can keep students on task ‡*	30	0.714
B13	I can understand curriculum requirements ‡	29	0.657
B14	I can recognize the organizational constraints and resource limitations existent at my school ‡	27	0.500
B15	I can draw on relevant research findings to guide my teaching ‡	24	0.333
	Mean CVR for PK		0.683

Content Knowledge

Item Code	Item	N Essential	Content Validity Ratio
C1	I can explain the grammatical features of the English language	24	0.371
C2	I can describe the phonological features of the English language	19	0.085
C3	I am familiar with the differences between spoken and written English	32	0.777
C4	I can maintain the use of English in the classroom	33	0.833
C5	I can comprehend English texts accurately	34	0.888
C6	I can comprehend English speech accurately	34	0.888
C7	I can monitor my own writing for accuracy	33	0.833
C8	I can monitor my own speech for accuracy	33	0.833
C9	*I am familiar with the culture(s) of target language communities*	29	0.611
	Mean CVR for CK		0.678

Technological Content Knowledge

Item Code	Item	N Essential	Content Validity Ratio
D1	I know about technologies that I can use to teach listening in English	26	0.485
D2	I know about technologies that I can use to teach speaking in English	24	0.371
D3	I know about technologies that I can use to teach reading in English	26	0.485
D4	I know about technologies that I can use to teach writing in English	27	0.542

Item Code	Item	N Essential	Content Validity Ratio
D5	I know about technologies that I can use to teach English language grammar	24	0.371
D6	I know about technologies that I can use to teach English vocabulary	26	0.529
D7	I know about technologies that I can use to teach pronunciation of English words	24	0.371
D8	I know about technologies that I can use to teach spelling of English words	20	0.142
D9	*I know about the technologies that I can use to teach about the differences between cultures*	21	0.200
	Mean CVR for TCK		0.388

Pedagogical Content Knowledge

Item Code	Item	N Essential	Content Validity Ratio
E1	I can critically analyse my teaching in relation to theoretical principles ‡	23	0.314
E2	I can give appropriate feedback on learner language	36	1.00
E3	I can provide target language input at an appropriate level of difficulty	33	0.833
E4	I can select authentic English language resources to suit student needs (e.g. news, magazines...)	30	0.666
E5	*I can select activities which enhance the learners' intercultural awareness.*	24	0.371
E6	I can choose an appropriate approach to teach learners (i.e. communicative approach, direct method)	30	0.666
E7	I can plan when and how to use the target language, including meta-language I may need in the classroom	29	0.611
E8	I can identify linguistic problems experienced by learners (i.e. phonological, lexical or grammatical problems) ‡	32	0.777
E9	I can design language courses around the requirements of the curriculum ‡	26	0.444
E10	I am aware of the contextual factors that could inhibit/promote English teaching ‡	29	0.611
E11	I am aware of current research in the field of language teaching	18	0
E12	I am willing to experiment with different methods of language teaching	21	0.166
	Mean CVR for PCK		0.513

Technological Pedagogical Knowledge

Item Code	Item	N Essential	Content Validity Ratio
F1	I can evaluate the appropriateness of a technology for teaching a lesson §	32	0.777
F2	I can choose technologies that enhance the teaching approaches for a lesson †	32	0.777
F3	I can choose technologies that enhance students' learning for a lesson †	30	0.666
F4	I am thinking critically about how to use technology in my classroom †	31	0.722

Item Code	Item	N Essential	Content Validity Ratio
F5	I can adapt the use of the technologies that I am learning about to different teaching activities †	25	0.388
F6	*I can design relevant learning experiences to promote student learning, using technology* §	33	0.833
F7	*I can choose technologies to be used in assessment* §	21	0.166
F8	I can engage students in solving authentic problems using digital technologies and resources §	29	0.611
	Mean CVR for TPK		0.617

Technological Pedagogical and Content Knowledge

G1	I can teach lessons that appropriately combine English linguistic concepts, technologies, and teaching approaches †	26	0.444
G2	I can select appropriate technologies that combine English culture, technologies, and teaching approaches †	19	0.083
G3	I can select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn †	29	0.611
G4	I can use technology effectively to communicate relevant information to students and peers §	25	0.428
G5	*I can use a range of technologies to help students pursue their individual curiosities* §	19	0.055
G6	*I can use a range of technologies that enable students to become active participants* §	27	0.500
G7	I can provide equitable access to digital language learning tools and resources §	25	0.388
G8	*I can facilitate intercultural understanding by using technology to engage students with different cultures* §	18	0
G9	I can participate in digital learning communities to explore creative applications of technology to improve student learning §	21	0.166
	Mean CVR for TPACK		0.297
	Mean CVR for the Questionnaire		0.476

Key:

The critical value that needed to be achieved for an item validation with 36 experts was 0.327 according to Wilson et al. (2012).

Greyed out items did not pass the validation criteria

Italicised items were reworded based on expert feedback

Underlined items were taken out of the survey in order to break them down into more items or merge them with another item due to overlapping meaning

† Source Schmidt et al. (2009)

‡ Source Newby et al. (2007)

§ Source ISTE (2008)

Attachment 2. The journals whose editors and editorial boards were emailed and invited to participate

Journal name
Computer Assisted Language Learning- Electronic Journal (CALL-EJ)
Computer Assisted Language Learning
International Journal of Computer Assisted Language Learning and Teaching (IJCALLT) Journal
Language Learning and Technology
System
The Computer Assisted Language Instruction Consortium (CALICO) Journal
The JALT CALL Journal
The Journal of Teaching English with Technology
The Journal of the European Association for Computer Assisted Language Learning (ReCALL)
Total: 9

Attachment 3. Validity and reliability of the measurement tool

Factors	Items	Factor loading	Eigenvalues	Percentage of variance	Rotation sums of squared loadings	Reliability
PK/ PCK			13.149	26.299	8.900	.89
	B11	.797				.87
	B9	.792				.88
	E6	.724				.88
	B6	.702				.88
	E7	.698				.88
	B16	.679				.88
	E8	.633				.88
	B12	.628				.88
	E9	.624				.88
	B2	.541				.88
	E10	.528				.88
	B3	.517				.88
TPACK			4.211	8.422	8.977	.89
	G8	.817				.87
	G6	.786				.86
	G4	.785				.87
	G3	.775				.87
	G5	.767				.86
	G7	.689				.88
	G1	.518				.88
TK			3.555	7.110	6.417	.81
	A16	.807				.80
	A18	.745				.80
	A5	.692				.80
	A20	.682				.78
	A21	.642				.77
	A19	.632				.79
	A15	.560				.80
	A17	.532				.80
	A22	.524				.79
	A10	.516				.80
	A14	.465				.79

Factors	Items	Factor loading	Eigenvalues	Percentage of variance	Rotation sums of squared loadings	Reliability
PK/ PCK			13.149	26.299	8.900	.89
	B11	.797				.87
	B9	.792				.88
	E6	.724				.88
	B6	.702				.88
	E7	.698				.88
	B16	.679				.88
	E8	.633				.88
	B12	.628				.88
	E9	.624				.88
	B2	.541				.88
	E10	.528				.88
	B3	.517				.88
TPACK			4.211	8.422	8.977	.89
	G8	.817				.87
	G6	.786				.86
	G4	.785				.87
	G3	.775				.87
	G5	.767				.86
	G7	.689				.88
	G1	.518				.88
TK			3.555	7.110	6.417	.81
	A16	.807				.80
	A18	.745				.80
	A5	.692				.80
	A20	.682				.78
	A21	.642				.77
	A19	.632				.79
	A15	.560				.80
	A17	.532				.80
	A22	.524				.79
	A10	.516				.80
	A14	.465				.79

Extraction Method: Principal Component Analysis

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.
b. Right aligned reliability values represent the internal alpha of the TPACK subcomponent it is included in, left aligned reliability values represent a particular section's alpha level if the item it is aligned with is deleted.

Appendix 2. Initial interview schedule

Activity System Component	Engeström (2001) Expansive Learning Model	Questions	Prompt and Probes
Activity		*The activity that is shared by all subjects is their engagement within the WiA online community of Practice*	
Subject (Who)	"Who" and "Historicity"	*A brief introduction and information about the individual being interviewed (based on the demographics[63] provided).* Would you like to add any other information regarding your background?	
Object	"Why", "What", and	How did you join WiA?	
	"Historicity"	Why did you join/ become a member of Webheads in Action (WiA) community?	What was your aim in joining WiA community?
		What motivates you to spend time online with Webheads?	
Tools	"What" and "Why"	How do you interact with the community?	What are the platforms that you use in order to engage with the community? Which one do you prefer most why?

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[63] The demographics data that will be collected through the questionnaire consists of; gender, age, teaching experience, type of institution they teach at, date of joining WiA, the frequency of their use of different platforms to engage with the community, frequency of their posts, country they are teaching in, being native/ non-native, frequency of using technology, and their technology related professional development in the past

				Which one do you not use why?
				You did not mention ….Would you like to talk about it?
				If there is still a need for additional information, the following questions will be asked
				Why do you (not) use Facebook/ Yahoo/ Google + group?
				Why do you (not) participate in Webinars?
				How does the timing of the Webinars affect your participation?
				Do you watch recordings of past Webinars?
Subject- Tool- Object	"How"		*Only Questions related to the tools that the participant reported using will be asked to the participant.* In which ways do you use the *Yahoo* group?	Do you post messages/ read posts? How often do you check the Yahoo group page?
			In which ways do you use the *Facebook* group	Do you post messages/ read posts? How often do you check the Facebook group page?
			In which ways do you use the Google+ group?	Do you post messages/ read posts? How often do you check the Facebook group page?
			In which ways do you participate in Webinars?	Do you attend Webinars? Do you watch recordings of the Webinars?

		What do you think about the EVO workshops offered through the community?	
	"Historicity"	Has your use of ….. changed in time? Has your use of ….. always been like that?	
	Language as a Tool	How does the use of English as a medium of communication within the community influence your participation?	
Rules	"What", "How" and "Historicity"	During your engagement within the community, have you become aware of any rules/ norms governing the Webheads Community?	
		How did you learn about these rules/ norms?	
		Has any rules/ norms changed over time?	
Subject- Rules-Object	"How"	How does the rule/ norm of …. influence your participation in WiA community? Were there any other rules that influenced your participation?	
Community	Who? Historicity	*In addition to the demographic information that will be gained from the questionnaire results, the following questions will be asked;* What is your impression of other members within the community?	Do you know who they are and what they do? What is their professional background? Are they new members?
Subject-Community-	How	How did other members' behaviour influence your participation in WiA?	How did other members' behaviour support your participation in the community?

			How did other members' behaviour constrain/prevent your participation? What did you do in order to overcome these problems?
Object			
Division of Labour	"Who" "What" "Historicity"	Do you have any responsibilities divided between you and other members?	You mentioned there are …. What are their roles in the community?
		How would you describe your current contributions?	What were your contributions to the Webhead community, when you just became a member? What were your contributions after you became a member? If you do not contribute, what do you think is preventing you from contributing?
Subject- Division of Labour- Object	"How"	How does this affect your participation?	
Outcome	"What" "How"	How would you describe your current practices in using technology in your teaching?	How do you use technology in your classroom at the moment?
		How did you acquire those skills?	Has the community influenced it in any way?

		How, if at all, has your knowledge of technology changed during your involvement with WiA? (e.g. technology skills, access to useful information/material)	Can you give me a specific example of a technology related skill that you think you have gained/learned through your participation in WiA? Can you give me a specific example of useful material(s) that you have accessed through WiA? Can you give me a specific example of useful information that you think you have accessed through WiA? Are there any other examples that you would like to share?
Outcome (Continued)	"What" "How"		
		How, if at all, has your pedagogy knowledge changed during your involvement with WiA?	Can you give me a specific example? Are there any other examples that you would like to share?
		How, if at all, has your knowledge of the English Language changed during your involvement with WiA?	*They could say it changed in… or It did not change.* Why do you think so?
Subject– Community- Object		Have you ever had any collaboration with other Webheads?	If yes, can you tell me more about it? If not, why not?
		How did it affect your participation?	

Multivoicedness will be achieved by taking into account voices of different members and their responses (cross case analysis).

There are not necessarily any contradictions. However, past contradictions might be pointed out in the interviews. For example, there used to be an online conference that WiA hold every two years but as all WiA contributions are made voluntarily and as it required a lot of effort they stopped doing the online conference. Instead, they came with the idea of having more regular Webinars where different members would be presenting.

Engeström's (2001) Activity Theory (AT) model includes a category of "expansive learning" which will not be covered in my study. Engeström's (2001) work was more focused as an intervention and "expansive learning was to an extent the result of the intervention. However, my study will be more descriptive, hence the expansive learning cycle will not be covered.

Historicity will be achieved by asking interviewees questions about their past and present activities and changes in the community over time.

Appendix 3. Invitation post for the main study

Dear Members (A.K.A. **Webheads**),

My name is Ali Bostancıoğlu and I am a doctoral student in the Department of Education at the University of York, UK. I am working under the guidance of Dr. Zöe Handley on my PhD project which investigates English language teachers' professional development.

I am a member of the Webheads in Action (WiA) community. The WiA community relates to my research topic, which investigates the impact of engaging in online communities of practice on English language teachers' professional development. I am investigating Webheads' (such as yourself) experiences and views of the WiA community in order to understand the nature of participation in an online community of practice. I am intending to recruit both **OLD** and **NEW** members. I really hope that you will be able to help me with this small but potentially useful project. If you agree to participate in my project, you will receive a report on the findings of this case study of the WiA community.

You are kindly asked to fill in a ten-minute online questionnaire, the link is provided below. Participation is voluntary and you reserve the right to withdraw at any time. The ethical procedures set by the University of York have been followed in the present research and ethical clearance has been received. The data from the interview and questionnaire will be handled according to data protection guidelines. The data will be securely stored in a password protected electronic research file. All the data gathered will be anonymized. Therefore, you will not be identified in any presentations or publications which may result from this study.

If you wish to participate in the study please follow the instructions provided in the questionnaire link: http://bit.ly/Webheadsurvey

If you have any questions or comments, please contact me (ab1007@york.ac.uk) in the first instance. If you are not satisfied with my response, you can contact Dr. Emma Marsden (emma.marsden@york.ac.uk) who is the Chair of Ethics Committee in the Department of Education at the University of York.

Yours Sincerely

Ali Bostancıoğlu (PhD student), University of York, Department of Education

Email: ab1007@york.ac.uk

Appendix 4. Interview extract: Empowering interviewees and hiding assumptions

Empowering interviewees

"**Researcher:** Uhm just going back to... You mentioned me many names earlier. What do you think their roles are in this community?

Mary: Okay uhm I think that Julio and uhm Mohsen are and Emma are one the biggest coordinators of the EVO session. So I think that their participation and their roles within the community is more active. That's what I think. I am not sure of the answer.

Researcher: No, no that's all I am interested is what you think.

Mary: Ah okay.

Researcher: And there is no right or wrong answer, so all I am looking to hear is what you think and what other members think. I do not know much about them myself. So I am also trying to learn.

Mary: Oh great!" (Extract from interview with Mary).

Hiding assumptions

"**Stefania:** Yeah better because everything is very very flexible there. Have you been a Webhead for many years?

Researcher: No, almost a year now but my interaction has been mainly on the background because of my study. So, I have been mainly following what's happening but until/...

Stefania: And how come you pick this topic for your PhD?

Researcher: Uhm can I tell you at the end of the interview? I will note it down.

Stefania: Okay, so where were we? Uhm, so culture yes" (extract from interview with Stefania).

Appendix 5. Memo extracts from qualitative analysis

Reflection on nine months collection of Yahoo! group messages

Within the nine months of message collection, I kept following the messages shared within the community and whenever a message requesting for help was shared, I paid attention to whether an answer would appear to the query. In fact, many of the messages were responded within 24 hours. In fact, one of the reasons I created a separate email account for registering to the community was to analyse how fast those responses were received (with date and time of day details). I will later on need to check how many requests there were.

Every time I saw a query being answered, I started thinking that the fact that they are so responsive might be a positive factor for participation. Similarly when one of the members died, the longest tread was around that topic. Then I remembered that Webheads celebrate each other's holidays in messages. Those made me think that members are also supporting each other emotionally. Webheads in Action is a diverse community but they don't let this diversity get ahead of the community. They, in fact, use that diversity in order to create bonds with each other.

The use of Yahoo! group among peripheral and active members

10 out of 11 lurkers used the Yahoo! group. Not all of them were asked the same question but five of them mention clearly that they used a daily digest to receive community interactions. I remember that active and core members did not use the daily digest option because they wanted to learn what is happening as things happen.

I will need to reconsider if that provides enough evidence that members (lurkers) are not interested in discussions and contributions to the community but rather keep following to be updated (quotes of motivation).

Appendix 6. Consent form for the questionnaire

Webheads Survey

Participant Consent Form

I confirm that I have read and understood the participant information page of the Webheads survey.

I understand that my participation is voluntary and I may withdraw until 31.06.2014 by informing the researcher.

I have had the opportunity to ask questions regarding the study.

I understand that the data gathered from the present study will be kept confidential and no unauthorized persons will have access to the data.

I have been informed that;
- All data will be anonymized
- The digital version of the data will be stored securely in a password protected research folder.
- Any information which can be used to identify participants will be deleted or destroyed at the end of the project.

I understand that anonymised version of the data can be shown at researchers' meetings and in publications.

I understand that this research study has been reviewed and has received ethics approval following the procedures of the Department of Education, University of York.

Please tick "Yes" if you have read the consent form and wish to participate in the study. *
○ Yes
○ No

« Back   Continue »

15% completed

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Appendix 7. Email invitation sent to potential interview participants

Dear (Name),

Thank you very much for taking the time to participate in the Webheads Survey. Firstly, I would like to reintroduce myself. My name is Ali Bostancıoğlu and I am a doctoral student in the Department of Education at the University of York, UK. I have been a member of Webheads in Action (WiA) community for about a year now and I am studying Webheads as my research topic.

As a follow up to the questionnaire, I am conducting interviews which will take around 30 minutes to an hour. Currently, I am looking for members to take part in the interviews and I would really appreciate it if you could help me by participating in the interview.

I have included the participant information sheet below and I hope you will be able to take part in my study.

I am looking forward to hearing from you.

Yours Sincerely

Ali

PARTICIPANT INFORMATION

This study aims to investigate members' experiences and views of Webheads in Action (WiA) community in order to find out factors affecting participation in an online community of practice.

You will be asked to answer questions during a telephone or Skype interview with the researcher. The interview is expected to last between 30 minutes and 1 hour and it will be recorded. The recording will be transcribed and you will be given an opportunity to comment on the written record once it has been produced.

The data from this interview will be handled according to data protection guidelines. Data will be securely stored in a password protected electronic research file and only the researcher involved in this study will have access to these data. You will not be identified in any presentations or publications which may come from this study.

If you have any further questions about the study, or would like a debrief after the study is completed, please write to the researcher (ab1007@york.ac.uk).

Appendix 8. Email response received from Betty suggesting voluntary participation

"Dear Ali,

Nice to meet you. Scheduling a live interview may prove tricky due to time and availability constraints but I am willing to try. Just tell me when you are planning to do this, and we can work together to adjust our schedules. Are you based in the UK?

Best,
Betty" (Personal communication with Betty).

Appendix 9. Email response received from Vance regarding the publicity of Yahoo! group messages

From: Vance Stevens (vancestev@....)

To: Ali Bostancıoğlu (ab1007@york.ac.uk)

Date: 12 November 2013 at 13:44

Subject: Re: Yahoo Group

Good questions. The essential one is that you don't want group dynamics to be changed by the process of observation. On the other hand people interact in the group presumably aware that their posts are public. I have myself sometimes (I think there is an example in the book chapter I submitted) quoted from our list without mentioning a name but provided a URL where anyone could follow the link and the source of the quote would be identified. Perhaps you are concerned about scale. Doing this once (or twice) is not disruptive but if you are quoting extensively (and of course you need to record somewhere your sources) then this could be another matter.

Another thing for you to consider is that you might not be able to contact the source of your quotes. I don't think people's emails are exposed in the list (they are to me, as owner of the group) but even so they may not be alive / at the same email address / responsive.

You are standing on two legs. One is that you are using and analyzing a public record. People post here presumably with the knowledge that it is to a public record. We are after all an open community, not a closed one. The other leg is the one we are discussing, possible ethical violations. At the end of the process you want to remain standing on two legs.

Perhaps an understanding of openness is the key. If you use a public record but submit its analysis to an institution that operates in a closed system, there could be a problem with perception of ethics in an ecosystem where this perception is moving toward open.

It's a deep topic, one we should probably discuss on a blog, or even in a MultiMOOC (this is also an open community). Maybe if you can hold off on the issue until February (proceed with your analysis but don't toss the issue out to the group just yet), we could moot it there (during the course of MultiMOOC). As we are collectively planning our agenda for the EVO session, you could perhaps take on a discussion of the topic of openness and we can build it into the syllabus. Some of our participants in EVO might be in both Webheads and Multiliteracies. This would also give you more time to experience group cultures and dynamics.

^v^

Vance Stevens

Appendix 10. Template Consent Form for the posts to be included in reports and/or the thesis

Dear (name),

My name is Ali Bostancıoğlu and I am a doctoral student in the Department of Education at the University of York, UK. I am currently working under the guidance of Dr. Zöe Handley on my PhD project which investigates English as a foreign language (EFL) teachers' professional development.

I am particularly interested in the impact of engaging in online communities of practice (OCoP) on EFL teachers' technology professional development. I have chosen to investigate Webheads in Action (WiA) community as a case study. As part of my data collection procedure, I have collected and anonymized all the posts dating between October 2013 and June 2014 for my analysis. On (date), you posted the following;

"(The post)"

I am interested in including your post in my thesis as an example. Therefore, I am writing to provide you with the opportunity to withdraw your post from the thesis if you would prefer it not to be included.

You do not have to reply this message, if you are happy for your post to be included in the thesis or any publication that might result from the study. However, if you wish your post to be omitted, then please contact me (ab1007@york.ac.uk) within the next 14 days (2 weeks).

If you have any further questions about the study please do not hesitate to contact me (ab1007@york.ac.uk)

Yours Sincerely

Ali Bostancıoğlu

Please note should you have any complaints, the issue should be directed to the researcher in the first instance (ab1007@york.ac.uk). If you are not satisfied with how the researcher handles the issue, you can contact Dr. Emma Marsden (emma.marsden@york.ac.uk) who is the Chair of the Ethics Committee in the Department of Education at the University of York.

Appendix 11. Introduction to Interviewees and their backgrounds

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
1.	Vance M, 40+ United States/ United Arab Emirates	Higher Education 30 years	Core 12 years	Vance had taught ESL while he was in the US. He got a job as a CALL coordinator after setting up a language institute for military in the UAE. During this time he started teaching English online and created a group that he named Webheads around 1997. After a few years, Vance decided to change the focus of the group and bring together teachers of English and he set up the first Webheads in Action (WiA) Electronic Village Online (EVO) session. The WiA group has started with this EVO session in 2002 and Vance has become the moderator. Over time, he has visited and met a number of Webheads in different countries. Vance is currently teaching in an aviation college and uses technology in all classes he teaches.
2.	Mike M, 40+ Australia	Higher Education (Retired Teacher) 20 years	Core 12 years	Mike is a recently retired teacher who has taught humanities and English as a second language (ESL) in Australia and English as a foreign language (EFL) online. Mike has known Vance since 1997 and joined WiA in 2002 in the first WiA EVO session. He had used technology all the time when he taught and became an educational technologist who trains teachers in using technology for education at vocational college level. He considers that he had built friendships in Webheads and has met Webheads in real life in different parts of the world.
3.	Telma F, 40+ Portugal	Primary School (Retired Teacher) 33 years	Core 12 years	Telma had taught young learners and adolescents in primary and secondary public schools and adults (soldiers) in the air force before she retired. Telma is one of the first WiA members of the WiA group and participated in the first WiA EVO session that was moderated by Vance in 2002. She is one of the co-moderators of the Becoming a Webhead (BaW) EVO session that ran for 10 years from 2004 to 2013. During the time she joined the community; she was teaching English to 5th and 6th grade (11-12 year olds) students and had Webheads participate in her classes virtually from time to time to talk to her students. Telma has met some of the Webheads in real life and considers them as "great friend".

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
4.	Cecilia F, 40+ Brazil	Language School 17 years	Core 8 years	Cecilia works in a private language institution in Brazil and teaches English to a variety of different learners ranging from children to adults. She is also the coordinator of the educational technology department in this private institution, which she underlined that she got promoted to this position thanks to the Webheads. Cecilia participated in the BaW EVO session before she became a member of the WiA group. She makes frequent uses of technology in her teaching. For example, she uses WhatsApp[64] to communicate with students and practice English beyond classroom.
5.	Delma F, 40+ Spain/ Venezuela	Higher Education (Teacher Trainer) 16 years	Active 12 years	Delma currently resides in Spain but is affiliated with a higher education institution in Venezuela. She teaches English for specific purposes (ESP). She is also affiliated with a distance education university in Spain and gives graduate courses about the use of technology in education to teachers. Delma is one of the first members of the WiA group and participated in the first WiA EVO session given by Vance in 2002. She considers that "Webheads changed [her] life" and she "earn my living thanks to Webheads". Delma is also one of the co-moderators of the BaW EVO session that ran between 2004 and 2013. She met the Webheads in real life in different activities such as TESOL conventions in the USA. There were Webheads who supported her PhD Viva when her family could not be there.
6.	Raine F, 40+ Argentina	Teacher Trainer 35 years	Active 12 years	Raine taught English at different levels including primary and high school before she became a teacher trainer in Argentina. Raine joined WiA in 2002 when it was founded and she is one of the first members. Raine uses technology in most of her teaching (training) and has formed an online platform (different from WiA) for EFL teachers all around South America. She enrolled in one of Google's workshops for teachers and became a Google certified teacher. Raine presents in Webinars from time to time. She considers the time after joining the community as a "practically new life". Like most of the members in the core and active group she has met Webheads in real life and considers them as friends.

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[64] WhatsApp is a proprietary, cross-platform instant messaging subscription service for smartphones and selected feature phones that uses the internet for communication. https://www.whatsapp.com/

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
7.	Betty F, 40+ Brazil	High School 40 years	Active 10 years	Betty is a secondary (high) school teacher who is teaching English in an EFL context. She has started her teaching carrier in a private language school and has taught English at all levels from elementary to advanced levels. Betty has developed her skills in using technology for which she has been referred to as the 'blogging queen' within the community. Betty has become part of the WiA group after being asked to present a session on blogging in the EVO by Webheads. Betty uses technology in some of her lessons. However, she conducted a number of international online student exchange projects, some of which took place prior to joining the WiA community. Whilst enjoying being with the community, Betty considers herself "an outsider from the community". Nevertheless she appreciates her connections in the community and has met a number of Webheads in real life.
8.	Emma F, 40+ England/ France	Higher Education 25 years	Active 9 years	Emma teaches English for specific purposes (ESP) to undergraduate and postgraduate students who specialize in Physics and Mechanics. She participated in an EVO session about blogging that was run by WiA members. She kept enrolling to the EVO sessions and joined the WiA community. Emma considers herself as technically very competent and uses technology in most of the classes she teaches. She is part of the EVO coordination team and also participates in the WiA community. She considers EVO and WiA to be synonymous. She said it was only after she met some Webheads in real life that "others became real".
9.	Hailey F, 40+ United States	Online Teacher 14 years	Active 8 years	Hailey teaches English online to students all over the world who are above 17 years old. She describes her job as being a guide and facilitator rather than teaching. Hailey participated in the Multiliteracies and Drama EVO sessions and then was invited to become a member of the WiA group. Hailey holds a master's degree in adult education which she completed online and also worked abroad as an EFL teacher before she started her online teaching carrier. Hailey is part of the EVO coordination team.
10.	Mary F, 40+ Argentina	High School 25 years	Active 6 years	Mary is a high school English teacher who is teaching 11 to 16 year old students in EFL context. She has also taught in primary school and private institutions. Mary has joined the Webheads in Action (WiA) group after completing the Becoming a Webhead (BaW) session offered in EVO. Mary uses technology in some lessons and has been involved in a number of international projects where her students collaborated with other Webheads' students from different countries. She is also part of the ICT4ELT EVO session moderator team.

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
11.	Mandy F, 40+ Argentina	Language School 35 years	Active 6 years	Mandy is the owner and head teacher of a private language institution and is also involved in English teaching. She teaches 16 to 21 year old students who are getting prepared for a language certificate exam. Mandy participated in the BaW EVO session before she joined the WiA group. She utilizes technology in most of the classes she teaches.
12.	Vania F, 40+ Slovenia	Higher Education 25 years	Active 5 years	Vania teaches English for specific purposes to sociology students in a Slovenian higher education institution. Vania has participated in the BaW EVO session and then joined the WiA group. She has completed a master's degree in teaching English with technology and utilizes technology in every class that she teaches. She is engaged with the whole group but also part of another community in her country where she collaborates with fellow Webheads from her country.
13.	Sarah F, 40+ England/ France	Language School 20 years	Active 4 years	Sarah works in a language school in the Channel Islands. Sarah describes her teaching to fit both EFL and ESL contexts. It is EFL when she teaches English to the French community living in the Channel Islands and ESL when she teaches international students who come to study English. She generally teaches adult learners at levels ranging from intermediate to proficiency. Sarah has participated in the BaW EVO session before she joined the WiA group. She uses technology in most of the classes she teaches.
14.	Patrick M, 40+ United States	Higher Education 25 years	Peripheral 10 years	Patrick is English as a second language (ESL) teacher in a higher education institution in the United States. He also teaches a technology class in the BA TESOL program. Patrick participated in the BaW EVO session before he became a member of the WiA group. Patrick uses technology in every class he teaches.

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
15.	Rebecca F, 40+ United States	Teacher Trainer 25 years	Peripheral 9 years	Rebecca used to teach MA TESOL teacher preparation program in a higher education institution in the USA. She is now a teacher trainer who trains in service English language teachers. She is a Fulbright Senior Fellow and travels abroad and does workshops and training sessions all over the world. Though she was not sure when she joined, a cross check of the community records suggested she joined the community in 2005. Rebecca participated in the BaW prior to joining the community. Rebecca uses technology in most of the training sessions she does.
16.	Stefania F, 35-39 Slovenia	Higher Education 12 years	Peripheral 9 years	Stefania teaches EFL in a vocational higher education institution in Slovenia. She taught in primary and high school levels prior to her current position. Unlike most of the interviewees, Stefania joined the WiA group in 2005 without having attended an EVO session. She did, however, participate in the BaW EVO session the year after. Stefania utilizes technology in every class she teaches. Stefania used to be an active member of the community until a few years ago.
17.	Julio M, 40+ Brazil	Language School 24 years	Peripheral/ Active 7 years	Julio is an English teacher in a private language institute and teaches English at all levels from elementary to advanced levels. Julio completed the BaW EVO session before he joined the WiA group. Since he was not actively involved in the WiA Yahoo group, he was considered as a peripheral member. However, he is one of the coordinators of the ICT4ELT EVO session which is seen as a continuation of the BaW EVO session. Julio makes use of technology in all classes that he teaches. He, for example, experiments and tries different applications for language teaching on his IPad.
18.	Havva, F, 35-39 Iran/ Australia	Higher Education 13 years	Peripheral 7 years	Havva is from Iran but she is a teacher in a higher education institution in Australia and teaches writing to undergraduate students. Prior to moving to Australia, Havva taught EFL to adolescents and adults in Iran and she was involved in language testing and materials development. Havva was encouraged to join the WiA community by her supervisor and she joined after completing the BaW EVO session in 2007. The Webheads helped Havva with her PhD study in which she needed an online space to deliver an online course for 15 weeks and the Webheads offered the synchronous online platform that they utilized for her study. Havva uses technology in most of the classes she teaches.

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
19.	Vanesa F, 40+ Argentina	High School/ Higher Education 28 years	Peripheral 7 years	Vanesa is a high school English teacher in a private school in Argentina. She is also involved in distance education and teaches a class about technology at master's level for a Colombian University. She has also prepared English language teaching materials for internationally recognized companies. Vanesa participated in the BaW EVO session before she joined the WiA group. She uses technology in most of the classes she teaches.
20.	Marilyn F, 40+ United States	Librarian	Peripheral 6 years	Marilyn holds a master's degree in information science and technology and has taught in US schools as a librarian for some time. She received her TEFL certificate when she was abroad in Brazil. She was involved in online language teaching and language material development for a while. Marilyn participated in the BaW EVO session before she joined the WiA group.
21.	Trella F, 40+ Venezuela	Higher Education 20 years	Peripheral 6 years	Trella is currently teaching two subjects in English one of which is English reading and writing and the other is related to the use of technology in language teaching. Trella uses technology in most of the lessons she teaches. Unlike many of the interviewees, Trella joined the WiA group after being suggested by a colleague. She then joined the BaW EVO session that was advertised in the group.
22.	Sally F, 40+ England/ Spain	Language School 7 years	Peripheral 4 years	Sally is a native speaker of English and she is currently teaching English in an afterschool academy and as the name of the institution suggests she teaches in in the afternoons and evenings. Her learners are at different levels and different ages. She participated in the BaW session before she became a WiA member. Although she is willing to use technology, she can only make use of technology from time to time due to limited resources in the institution she teaches.

No:	Participant (gender, age, country)	Sector (length of teaching experience)	Membership (length of membership)	Participant Profile
23.	Amal F, 30-34 Egypt	Language School 14 years	Peripheral 3 years	Amal had experience of teaching young learners at primary school level in a government school in Egypt. Last year she got her Certificate of English Language Teaching to Adults (CELTA) and started her new job in a language institution where she teaches different level and age of students. Amal joined WiA after completing the BaW EVO session in 2011. She uses technology in some of her lessons and has been involved in a number of international online student exchanges with other Webheads' students. Amal was considered as a peripheral member since she was not actively involved in the WiA Yahoo group. She is, however, one of the coordinators of the ICT4ELT EVO session which is considered as a continuation of the Becoming a Webhead EVO sessions.
24.	Mona F, 40+ Iran	Higher Education (PhD Student, Private tutoring) 5 years	Peripheral 0,5 year	Mona is a PhD student in a higher education institution in Iran. She has previously taught ESP to undergraduates and is currently running private courses for adult learners. Mona is the only interviewee who did not participate in any EVO session. She joined the community after one of the professors in the university asked them to. Mona uses technology in most of the classes she teaches. While they did not seem to be aware of each other within the community, Havva and Mona had the same professor who told them about the Webheads.

Appendix 12. Webheads (Questionnaire participants) around the world

Appendix 13. Member interactions as reported by the interviewees[65]

Interviewee	Level of Participation		
	Peripheral	Active	Core
Havva[66]	Jade, Marcus	Eve	Cecilia, Vance
Marilyn			Mike, Vance
Mona			Vance
Patrick	Heysem	Delma, George	Nancy , Vance
Rebecca			Cecilia, Telma, Vance
Sally	Naomi	Nigel	Vance
Stefania		Betty, Delma, Emma, Hailey Raine, Vania	Mike , Telma
Trella		Eve, George, Nigel	Vance
Vanesa		Gareth, George, Nigel, Sarah	Cecilia, Nancy, Vance
Amal[67]	Deniz , Julio	An, Delma, Eloise, Mary, Mohsen	Telma , Vance
Betty	Jackie, Jade	Delma	Cecilia, Mike, Telma, Vance
Delma	Malcolm, Melisa	Eloise, Hailey	Mike, Telma, Vance
Emma	Boris, Melanie	Mary, Raine	Cecilia

[65] It is acknowledged that this is not a complete list of interviewees all interactions within the community but the most recent and/ or frequent ones compared to the rest of their interactions since it is considered that interviewees did not have much time to think about all their interactions.

[66] Members whose name has been aligned to the left were identified as peripheral members, to the centre as active members, and to the right as core members.

[67] It can be seen through the biographies provided (in Appendix 11) that whilst being considered as a peripheral members, in fact, Amal and Julio seemed to be active participants of the WiA community as they took on responsibilities was not captured in the Yahoo! group interactions.

Interviewee	Level of Participation		
	Peripheral	**Active**	**Core**
Hailey		Delma, Nigel	Cecilia, Telma, Vance
Julio	Amal, Heysem	Mary, Eve, Filipa, Mohsen, Betty	Mike, Telma, Vance
Mandy	Madena, Roberto, Salome	Eloise, Mohsen, Rafael, Raine	Cecilia, Telma, Vance
Mary	Amal, Jade	Emma, Filipa, , Julio, Mohsen	Derek, Telma, Vance
Raine	Jade	Charles, Emma, Mary	Derek, Mike, Telma, Vance
Sarah	Carlo, Hilda, Naomi	Delma, Emma	Telma, Vance
Vania	Nicola, Stefania	Gareth, George	Derek, Telma, Vance
Cecilia	Jade, Marcelo, Roberto, Vanesa	Betty , Caree, Delma, Eloise , Julio, George	Mike, Telma, Vance
Mike	Damian, Jesse,	Betty , Delma, Eloise, George, Raine	Cecilia, Jack, Telma, Vance
Telma	Natalie	An, Delma , Eloise , Julio, Raine	Mike, Nancy, Vance
Vance	Hilda, Rana , Terry	An, Delma, Nigel	Cecilia, Mike, Telma

267

Appendix 14. Thread analysis of the WiA Yahoo! group message history

Category	Sub-Category	Sub-Category	Time									N
			October-December 2014			January- March 2015			April-June 2015			190
			1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	
Invitations	To submit a proposal	For a book chapter			T53;							1
		For a(n) (e-)conference		T39; T42; T44;					T156; T158;			5
		For EVO sessions	T2;	T41;							T188	3
		For a journal	T1;	T47;				T131; T138;		T177;		5
	To participate in professional development opportunities	To (e-)conferences	T6;			T89; T97; T98;						4
		To webcasts						T135; T139;	T151;			3
		To Webinars	T16	T48; T52;	T58;	T93; T99; T103; T104;	T105; T107; T108; T111; T112; T113; T114; T115; T117; T118; T121; T124; T126;	T128;	T161;	T176;	T194; T200;	26
		To MOOCs				T101;				T174;		3
		EVO sessions			T65;	T88;	T119; T122;					4
	Other	To participate in surveys	T5; T21;				T125;		T170; T183;	T186; T190; T198;		8
		To collaborate		T24;	T57; T69;	T91;			T162;			5
		Total (N)	**6**	**8**	**5**	**10**	**16**	**5**	**5**	**5**	**6**	**66/ 35%**

Category	Sub-Category	Sub-Category	Time October-December 2014			January- March 2015			April-June 2015			N 190
			1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	
Learning2gether Updates	N/A	N/A	T4; T9; T11; T12; T17; T18; T19;	T27; T38; T46; T51;	T56; T60; T63; T68; T71; T78;	T86; T92; T94; T95; T100;	T106; T116; T123;	T127; T132; T136; T142;	T149; T153; T157; T160;	T163; T166; T168; T175; T179;	T185; T203; T204; T205;	42
		Total (N)	7	4	6	5	3	4	4	5	4	42/ 22%
Miscellaneous	N/A	N/A	T14; T17;		T66;	T96;		T130;	T152;		T197	7
		Total (N)	2	0	1	1	0	1	1	0	1	7/ 3%
Request for help	Technology	N/A	T8;	T30; T35; T40; T43; T45;	T54; T62; T64; T74;			T133; T146;	T154; T155; T165;	T173;	T192; T193; T195;	19
	Non-technology	N/A				T102						1
		Total (N)	1	5	4	1	0	2	3	1	3	20/ 11%

Category	Sub-Category	Sub-Category	October-December 2014			January- March 2015			April-June 2015			N 190
			1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	
Sharing resources	Articles	N/A		T29;	T70; T73; T76;			T137;	T164;	T167; T172; T178; T182;	T189; T201;	12
	E-book(s)	N/A			T77;			T129;				2
	Event recordings (i.e. conference talks)	N/A	T20;	T23;	T55;		T109; T110;		T159	T181;		7
	Webpages/ Software/ Apps	N/A	T10;	T32;	T67;	T85; T90;				T182;	T184;	7
	Excerpts of teaching practice	N/A		T36; T49;				T148				3
	Introducing other communities	N/A				T87;				T180;	T199;	3
	Total (N)		**2**	**5**	**6**	**3**	**2**	**3**	**2**	**7**	**4**	**34/ 18%**
Social Messages	Arranging face to face meetings	N/A	T3;					T140; T141; T143; T144; T145; T147;				7
	Holiday Celebrations	N/A	T15;	T50;	T72; T75; T79; T80; T81; T82; T84;							9
	Sharing feelings	N/A		T28; T33			T120;		T150;	T171;		5
	Total (N)		**2**	**3**	**7**	**0**	**1**	**6**	**1**	**1**	**0**	**21/ 11%**

Appendix 15. Thread examples from the WiA Yahoo! group message history

Category	Message content
Invitations	**Thread 5- Message 1 of 2** Hi All I'm doing some quick research in to which platforms teachers use to build their personal learning networks and what they feel the pros and cons of each one are. Your ideas, comments and votes on this crowdsourcing questionnaire would be appreciated. You don't need to register on the platform just click the X when asked and continue. Please feel free to share the link: http://tricider.com/brainstorming/18MSe Best [Name] **Thread 5- Message 2 of 2** Done! :) Smiles, [Name]
Invitations	**Thread 107- Message 1 of 3** Come and join me in 45 minutes for a webinar in 1 hours' time as part of the IATEFL YLT SIG TESOL EVO programme: Kids, Video Games, Images & ELT More details: http://yltsigevo2014.wordpress.com/graham-stanley/ Direct link to webinar: http://iatefl.adobeconnect.com/r7hsvgxxhws/

Category	Message content
	Hope to see some of you there
	Best,
	[Name]
Invitations	**Thread 94- Message 1 of 4**
	Greetings.
	I may not have posted to you about YLTSIG EVO 2014.
	For the second time, on behalf of IATEFL's YLTSIG, with the crucial team support of ffinlo and Helen, we are offering 15 webinars over the next 5 weeks. in TESOL's EVO sessions The webinars are open and free.
	For full details see:
	http://www.yltsigevo2014.wordpress.com.
	Tonight, 20th. January 2104, at 20:00 GMT (Local times available below)
	Nik Peachy will talk on Creating a Technically Friendly Environment.
	Hope to spot you amongst the participants sometime over the next few weeks.
	Cheers,
	[Name]

Category	Message content
Invitations	**Thread 156- Message 1 of 1**
	Dear EVO session moderators,
	Every year at the Virtual Round Table Web Conference, 25-27 April on Sunday at 2pm GMT a 2h EVO session Symposium takes place with Vance Stevens.
	If you have time to join to present the results of your EVO sessions, please contact Vance and myself. The presentations are a maximum of 20min (TED talk style) with a 5min Q&A in Adobe Connect, a web conferencing solution which is fairly easy to handle. You will get a chance to rehearse, if you have never presented before in Adobe.
	If you are interested in talking about your session, please fill in this brief submission form with a short abstract and a short bio. http://www.virtual-round-table.com/page/7th-vrtwebcon-call
	Looking forward to your proposals!
	[Name]
Learning2gether Events	**Thread 19- Message 1 of 1**
	Hi everyone,
	I believe I pointed you to the archive of last week's Sunday chat with [Name] and [Name]
	http://learning2gether.net/2013/10/20/learning2gether-with-hora-hedayati-and-susan-marandi-on-impediments-efl-teachers-perceive-in-implementing-call-in-efl-classes-in-iran/
	I have since rendered the mp3 from the Elluminate recording in case you would like to simply listen.
	This Sunday and next we have Learning2gether events designed for EVO moderator training but as always all are welcome to attend. Both

Category	Message content
	events are at 1400 GMT. This week we will explore Elluminate and next week we will explore how you set up and stream hangouts.
	This week , the plan is to make anyone a moderator who wants to be one and show them the tool kit and explain what you need to know about uploading to the whiteboard and setting number of available mics, and how to register the event so we don't get double bookings, and other such tips and tricks. If there is an another agenda, that is fine too, but I'll be in the background helping those interested with whatever they wish to know about the platform.
	At the appointed time please join us at http://learningtimesevents.org/webheads/
	For more information and to see when that time is where you are, visit:
	http://learning2gether.pbworks.com/w/page/32206114/volunteersneeded#Nextupcomingevents
	Vance Stevens
Help Requests	**Thread 43- Message 1 of 15**
	Dear Webheads
	Since 2012 I am a member of this yahoo group.
	Many times I have used your suggestions related to study English with the help of modern means.
	I want to thank you for the great job you do right here, particularly for the teachers who want to improve.
	I need some advice of how to teach a lesson about Internet better.
	I am using wikis, thesaurus, e mail writing, PowerPoint.
	Best wishes from Romania.
	[Name]

Category	Message content
	Thread 43- Message 2 of 15
	Dear [Name],
	Great to hear from you!
	You might want to start by checking this great publication that has some of our dear Webheads. What I like about it is that we have the theoretical background together with case studies. It was edited by [Name]
	http://www.teachingenglish.org.uk/sites/teacheng/files/C607%20Information%20and%20Communication_WEB%20ONLY_FINAL.pdf - Innovations in Learning Technologies for English Language Teaching
	Also, sites like http://edutopia.org can give us great insights.
	I also recommend you take one of our free online sessions happening in the beginning of January, the Electronic Village Online. There will be an amazing variety of topics to explore with educators all over the globe. It is a great way to find new insights to teach English with Technology.
	I hope this helps.
	Cheers from Brazil,
	[Name]
Sharing resources	**Thread 49- Message 1 of 5**
	Dear All,
	It's that time of the year again when I get many students' goodies to share. I'm sharing with you a few ezines that my Mass media class have produced for their midterm project.
	Please have a look. Share with your students- my students would definitely be happy to hear from you/them.

Category	Message content
	Note though: some students have submitted their drafts for editing, some didn't. What you'll see on these pages are their published work presented in class. Some articles are good, some need more polishing. One thing they have learned is- it's always better to double- (or even tripple-) check their work before publishing
	Here's the padlet site: http://padlet.com/wall/1mcwqdxsk1
	Here's the wiki page (see sidebar for rubric and task description)
	http://massmedia2013.pbworks.com/w/page/70654531/Students_Ezines
	Thanks! [Name]
	Thread 49- Message 2 of 5
	These are just great, An --look terrific!
	Did padlet create the book formats, or was that just a place to store them together? What tools did you use with the students?
	Cheers
	Thread 49- Message 3 of 5
	Hi [Name],
	Padlet was just a wall to 'hang' my students' ezines. Issuu works like that too- but Issuu does not provide a space where all the ezines can be collected and exhibited in one wall.
	In creating their ezines, they made use a mix of tools: microsoft word, adobe illustrator, photoshop, publisher, Paint, and powerpoint. Some lay-outs were created using Paint and Word- yet the results are impressive.
	For editing, we used Meetingwords and Word.
	[Name]

Category	Message content
	Thread 23- Message 1 of 2
	Probably the most thrilling short talk I have ever heard. [Name]'s vision for the future of learning.
	http://www.ted.com/talks/sugata_mitra_build_a_school_in_the_cloud.html?ref=nf
	[Added from the link above] Onstage at TED2013, Sugata Mitra makes his bold TED Prize wish: Help me design the School in the Cloud, a learning lab in India, where children can explore and learn from each other — using resources and mentoring from the cloud. Hear his inspiring vision for Self Organized Learning Environments (SOLE), and learn more at tedprize.org.
	[Name]
	Thread 23- Message 2 of 2
	Folks,
	Damp squib warning....
	I'm unconvinced about the 'revolutionary' nature of much of [Name]'s latest work. Looking at the TED video, I see two SOLEs (one in Australia and one in the UK) made up of kids who have been taught to think and work together and do enquiry-based activities, etc., doing what they've been doing for ages - chatting, looking things up, trying to make sense of something...
	But I also see kids reading stuff out from the Net - what I don't see is any evidence of their actually understanding any of it. The results don't seem to suggest anything great (and he's against testing, so...) - you can learn up to '30%' alone... And guess what, when someone in authority (a granny or whatever) sits around and encourages you (and helps???) your marks go up to a very average 50%.
	What's so revolutionary in this?
	[Name]

Category	Message content
Sharing resources	**Thread 184- Message 1 of 4** Hi everyone! I just recorded my first TouchCast, the "video web" as they call it, and loved it. I introduced myself to the TESOL PP 104 participants, a course that started today. If you register in Touchcast.com for free, you can watch the video with the very basic interactivity I created. If you watch it in YouTube, there's no interactivity. http://www.touchcast.com/teresadeca/intro_pp104jun2014 http://youtu.be/NK5sO93jX3g Explore Touchcast and take a look at all the features and vApps it offers. It has great potential for Education. Hugs, [Name] **Thread 184- Message 2 of 4** Dear [Name], Thanks for sharing your video and presenting this new tool. Very interesting and useful. All the best, [Name]

Category	Message content
Social Messages	**Thread 82- Message 1 of 7** Dear Webheads "Merry Christmas" to all of you. Thank you for all the materials I could access this year. You make me believe in the fact that we can improve ourselves and be better teachers . Wish you a better new year and hope that your dreams will come true. [Name] **Thread 147- Message 1 of 5** Anyone going to Harrogate next week? I'll be there Wednesday to Friday. [Name] **Thread 147- Message 2 of 5** I'll be there from Tuesday. Will try to catch up [Name]

Appendix 16. List of Learning2gether events

No	Date	Learning2gether session title[68]
	2014	
1	Sun, June 29	Hangout with Filip and Marijana Smolčec on the EU LLP Comenius project and learning through Minecraft
2	Sun, June 22	Malu Sciamarelli talking about Creative Writing and Language Learning
3	Sat, June 14	CALL-IS and IATEFL LTSIG webinar on Gaming and Gamification: A Win-Win for Language Learning
4	Sun, June 8	Learning2gether with Moodle MOOC 4; Shelly Terrell: Exploring Current Learning Rituals for Better E-Learning Zaid Ali Alsagoff: DNA of a 21st Century Educator
5	Sun, June 1	Nellie Deutsch – Opening Ceremony and Introduction to Moodle MOOC 4
6	Mon, May 26	Hangout with Judy Thompson on Radical English and teaching pronunciation through colors
7	Sun, May 18	Hangout with Alexander Hayes – Google Glass in Education
8	Mon, May 12	Hangout with University of Canberra INSPIRE first #glassmeetups and IHAQ#6
9	Sun, May 11	Hangout - Learning2gether with Jose Antonio Da Silva on Mobile Learning Tips and Issues
10	Sun, May 4	Learning2gether with Reform Symposium MiniCon in May (and IHAQ#5)
11	Sun, April 27	Learning2gether with the 7th Virtual Round Table and EVO SYMPOSIUM – IHAQ#4 and Earthcast 2014
12	Sun, April 20	Hanging out with Jeff Lebow talking about I have a Question, and Earthbridges.net and Earth Day
13	Sun, April 13	Learning2gether from Robert Wachman and Deborah Healey talking about Shaping the Way we Teach English
14	Sun, April 6	Learning2gether co-opted event - RSCON5 MiniCon and preview
15	March 25-29	Learning2gether from TESOL 2014 Portland March 25-29, links to streamed presentations
16	Tue, March 25	Vance Stevens: MOOCs and the Flipped Classroom, a part of the PCI (Preconvention Institute) entitled Integrating CALL with Web 2.0 and Social Media at the TESOL Conference, Portland
17	Sun, March 16	Aiden Yeh – Teaching the Art of Poetic Discourse

[68] The names used in this table are the real names of the participants. I did not anonymize the names in order to show the variety of different participants presenting in the Learning2gether sessions and pseudo names were avoided since a number of the presenters could have been interviewees who participated in this study and the identity of the interviewees could have been disclosed through such use of pseudo names.

No	Date	Learning2gether session title[68]
18	Fri, March 14	Vance Stevens Extending Google+ Hangouts to way beyond 10 participants, presented at the TESOL Arabia conference in Dubai UAE
19	Sun, March 9	Sun, March 9, 2014 - Vance Stevens hosts another session on iPads in language learning
20	Sun, March 2	Vance Stevens and colleagues discussed The iPads are coming! The iPads are coming! HELP! They're here!!
21	Sun, February 23	Vance Stevens and Jim Buckingham – MultiMOOC and Rhizo14: What was that all about?
22	Sun, February 16	Learning2gether with EVO 2013 – Live Webcast: Share Your Experience hosted by Jeff Lebow, Nina Liakos, and Vance Stevens
23	Tue, February 11	Vance Stevens presents "Once a Webhead always a Webhead" at EVO session ICT4ELT
24	Sun, February 9	Learning2gether with Prof. dr. Jozef Colpaert discussing 12 CALL Challenges
25	Sun, February 2	Ali Bostancioglu on Technology Professional Development: Networking and Online Communities
26	Tue, January 28	Karen Price on Perceptual computing in MOOC interaction and assessment
27	Sun, January 26	Vance Stevens: Chaos in Learning and its Resolution through Networking
28	Sun, January 19	Learning2gether with Jim Buckingham on Badges - an EVO MultiMOOC session
29	Sun, January 12	EVO Megakickoff Event hosted by Jeff Lebow, Nina Liakos, and Vance Stevens
30	Mon, January 6	Learning2gether with Morteza Barin – Using tablets for online teaching and learning
	2013	
31	Wed, December 18	Klaus Michelsen on Social business and blended learning in cash-strapped Lima public schools? Panacea or deadly combination?
32	Wed, December 11	Meeting with Delin Xiao at Taiwan Air Force Academy in BbC / Elluminate
33	Sun, December 8	Phil Hubbard on Digital content curation for CALL using TED Talk YouTube video
34	Thu, December 5	Vance Stevens introduces teachers in Al Ain UAE to Bb Collaborate
35	Mon, December 2	Maggie Sokolik and the College Writing 2.1x MOOC
36	Sun, November 24	Andy Kropa - Towards a technologically assisted human memory system
37	Tue, November 19	Vance Stevens presented "Meet online using Google HoA with unlimited participants" at the 4th Annual Global Education Online Conference

No	Date	Learning2gether session title[68]
38	Sun, November 10	Kalyan Chattopadhyay on Language teachers' use of social networking technologies in India
39	Sun, November 3	Learning2gether with EVO moderator training Week 2 Hangout on Air
40	Sun, October 27	EVO moderator training Week 1 wrap-up: Exploring Bb Collaborate / Elluminate
41	Sun, October 20	Learning2gether with Hora Hedayati and Susan Marandi on impediments EFL teachers perceive in implementing CALL in EFL classes in Iran
42	Sun, October 13	Vance Stevens representing Learning2gether at RSCON4: From teacher networked learning to transformation in your classroom
43	Sat, October 12	TESOL CALL-IS and IATEFL LTSIG Technology in Teaching free online conference
44	Wed, October 9	Maria Bossa presents her tools and projects to Cintia Costa's undergraduate TEFL students

Glossary

AT:	Activity Theory
BaW:	Becoming a Webhead
CALL:	Computer assisted language learning
CALL-IS:	Computer assisted language learning- Interest section
CK:	Content knowledge
CMC:	Computer mediated communication
CoP:	Community of practice
EFA:	Exploratory factor analysis
EFL:	English as a foreign language
ESL:	English as a second language
EVO:	Electronic village online
HCI:	Human computer interaction
IATEFL:	International association of teachers of English as a foreign language
ICT:	Information and communication technologies
ISTE:	International society for technology in education
IWB:	Interactive white board
LPP:	Legitimate peripheral participation
MCA:	Multimodal corpus authoring
MFL:	Modern foreign languages
MM:	Mixed methods
OCoP:	Online community of practice
PCK:	Pedagogical content knowledge
PD:	Professional development
PK:	Pedagogy knowledge
RQ:	Research question
TCK:	Technological content knowledge
TESOL:	Teaching English to speakers of other languages
TK:	Technology knowledge
TPD:	Technology professional development
TPK:	Technological pedagogical knowledge
TPACK:	Technological pedagogical and content knowledge
WiA	Webheads in Action
ZPD:	Zone of proximal development

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