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**FREELANCE LANGUAGE TEACHERS'  
PROFESSIONAL DEVELOPMENT ON...AND  
WITH...AND THROUGH TWITTER**

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**Thesis submitted for the award of Doctor of Education  
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## ABSTRACT

In recent years more and more freelance teachers have been employed in higher education and in further education, and they often struggle with barriers to professional development. Freelance language teachers are understood to work within various (self-) employment situations, often across educational sectors. For these teachers, access to professional development can be particularly challenging.

Previous research has suggested that teachers' use of the social media platform Twitter could lead to effective professional development (Carpenter & Krutka, 2014) and foster the formation of community among language educators (Wesely, 2013; Lord & Lomicka, 2014). Twitter is an Internet platform which enables registered users to communicate via text messages (tweets). While phenomenological research approaches have provided valuable insight into human experiences and perceptions of Twitter for professional learning, they tend to overlook the relational, human and non-human complexities involved (with)in the enactment of human practices.

Drawing on the Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming* (Deleuze & Guattari, 1987), this doctoral research seeks to provide answers to questions concerning how language teachers' professional development on...*and* with...*and* through Twitter works and what it produces. Research data included online narrative frame questionnaires, tweets and online participant interviews. Data enquiry involved *the working(s)-together* of situational maps (Clarke, 2005) and social network analysis (Newman, 2010).

This research suggests professional development and language teaching can be conceived of as entangled practices within human and non-human *assemblages*, which have the capability to produce unpredictable *becomings*, rather than as two distinct

elements of a binary relationship. Recommendations from this investigation aim to make language educators, language education providers and education policy aware of the relational workings of social media practices, and to provide concrete suggestions for actions that connect with existing practices and programmes to improve freelance language teachers' professional development.

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How does one express gratitude in a post-modern thesis, which insists on the principle equality of humans and non-humans? This is my answer:

My deepest gratitude goes to the humans and non-humans involved in the production of this thesis *assemblage*.

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## CHAPTER ONE: INTRODUCTION

“A rhizome has no beginning or end; it is always in the middle, between things, interbeing, intermezzo. The tree is filiation, but the rhizome is alliance, uniquely alliance. The tree imposes the verb "to be," but the fabric of the rhizome is the conjunction, "and. . . and.. . and. . .”

(Deleuze & Guattari, 1987, p. 25)

This thesis is trying to make difference in the research territory that I call ‘Twitter-in-education’. By difference I do not mean different from the same or a variation of existing research in Twitter-in-education, but something that produces new thinking-doing about professional development on... *and* with(in)...*and* through Twitter in education. What has provoked me to make such a bold move?

Originally, this thesis built on previous co-research with Dr Ursula Stickler on part-time language teachers’ professional development (PD) needs in the area of information and communication technology (Stickler and Emke, 2015). As a former Freelance Language Teacher (FLT), who taught English at a university, in an adult education centre and in companies for nearly ten years, I had experienced difficulties in gaining access to affordable and meaningful PD. The second professional connection with this topic is the DOTS (Developing Online Teaching Skills) project and its successor projects at the European Centre for Modern Languages, in which I have been involved since 2008. These projects support language teachers across Europe in integrating Information and Communication Technologies (ICT) in their teaching practice and in their professional development activities through workshops and self-study materials.

Stickler and Emke's (2015) study found that part-time language teachers' PD opportunities are constrained by limited resources available to them, particularly in terms of time and money, and suggested that informal PD opportunities could help address these problems. Another finding from the study revealed that there often seems to be a mismatch between PD opportunities offered by employers and part-time language teachers' development needs. Recent research through phenomenological studies suggests that educators' use of the social media platform Twitter (<http://twitter.com>) for informal professional development could help address these challenges (Forte, Humphreys, & Park, 2012; Carpenter & Krutka, 2014, 2015).

While phenomenological studies have been helpful for gaining insight into educators' perceptions of Twitter for PD and their experiences in employing it as a tool, phenomenological research approaches have tended to overlook the dynamics and the complexities of the multiple socio-technological processes involved in educators' use of Twitter. Tweeting as a situated and embodied activity involves the coming-together of a multiplicity of human and non-human elements, such as the Twitter user, a (mobile) device, the environment in which tweeting occurs, and other elements. Phenomenological research approaches investigate each of these elements in isolation as human perceptions, as experiences and as contextual factors, although they may be aware of interdependencies. However, by investigating isolated elements and by foregrounding the lived experiences of humans, phenomenological research tends to ignore the joint and relational workings and productions of these processes.

This study takes a different approach by investigating the entangled practices of FLT's PD on...*and* with...*and* through Twitter. Drawing on concepts of *rhizome*, *assemblage* and *becoming* (Deleuze & Guattari, 1987) my research will offer (a) different conceptualisation(s) of language teacher PD and suggest ways to think and act



differently within Twitter-based PD. Deleuze and Guattari saw their concept of *rhizome*, which will be explained in detail in Chapter 3.4.1, in opposition to hierarchical structures exemplified by the image of a tree:

“The tree imposes the verb "to be," but the fabric of the rhizome is the conjunction, "and. . . and.. . and. . ." This conjunction carries enough force to shake and uproot the verb "to be.”” (Deleuze & Guattari, 1987, p. 25).

This idea is taken up in the title of this thesis: instead of trying to determine what Twitter is (or is not), rhizomatic movements of freelance language teachers’ professional development activities on Twitter (as a social media platform), *and* with Twitter (as a tool) *and* through Twitter (as a medium) will be investigated. Whenever I refer to a conceptual understanding of *rhizome*, *assemblage* and *becoming* (Deleuze & Guattari, 1987) in my thesis, these words are written in italics. Actualisations of these concepts in my research are referred to as ‘rhizome’ (or ‘rhizomatic’), ‘assemblages’ and ‘becomings’. Following Deleuzo-Guattarian thinking I regard (my) research and writing this thesis as a constantly evolving non-linear thinking-writing-doing research human-non-human *assemblage*, where the researcher/author/me is just one element. This notion led me to consider adopting a linguistic approach that is not ego-centred by omitting the ‘I’, which foregrounds the researcher/author/me and not the *assemblage*. However, in the interest of readability and accessibility to a wider audience, I have decided to keep the ‘I’ commonly used in academic research.

To make this research accessible to a wider audience, who may not be familiar with Deleuzo-Guattarian thinking and their concepts *rhizome*, *assemblage* and *becoming*, I also decided to adhere to the commonly used linear structure of a thesis.

This could be seen to contradict the Deleuzo-Guattarian notion of multiple perspectives (multiplicities) and (over-)simplify the complexity of the research territory that is explored in this thesis. However, I contend that linear structures do not necessarily restrict unconventional thinking. Instead, they are temporarily existing structures that may dissolve into other, non-linear structures.

This thesis consists of seven chapters. This first chapter is followed by the literature review, which provides the background against which this doctoral study is set. The literature review starts with a description of the target group of FLT's and an outline of their PD challenges. It then moves into three different approaches to teacher learning, *learning as acquisition*, *learning as participation* and *learning as becoming*. The first and the second approach underpin perspectives on language teacher practice in Second Language Teacher Education. The last part of Chapter 2 deals with the technological side of Twitter-based PD. Overall, the literature review will outline the argument that existing research privileges anthropocentric research approaches and ignores the complex workings of humans and non-humans involved in FLT's' PD on...*and* with... *and* through Twitter.

Chapter 3 describes the development of the conceptual framework from its outset as a framework, which was informed by my previous research experience and socio-constructivist notions, to its final unfolding as Deleuzo-Guattarian inspired research assemblages. This chapter also explains the Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming*.

Chapter 4 explains the methodology assemblages that worked within this doctoral investigation. Online narrative frame questionnaires, tweet captures and interviews were made to work as pathways into the research territory (data collection),

while Grounded Theory and Social Network Analysis provided the underpinnings for the ensuing relational cross-reading of data (data analysis). This chapter also includes a section on ethics.

Chapter 5 describes the workings with(in) situational maps and the situated knowledges they produced (findings) with regard to FTLs' PD on...*and* with...*and* through Twitter. This chapter also contains a section on researcher becomings and a section about the challenges and opportunities that I encountered as the research processes unfolded.

In Chapter 6 the situated knowledges are discussed against the background of existing research and arguments for a re-conceptualisation of professional development are put forward. Finally, Chapter 7 concludes this thesis with recommendations for FLTs, for language education providers and for education policy. Contributions from this study to academic research and suggestions for future research are also included in this final chapter.

## CHAPTER TWO: LITERATURE REVIEW

The Twitter for professional development research territory is a vast landscape where it is easy to get lost. It is customary in academic research for the literature review to provide the background against which doctoral investigation is set and also to define the boundaries of the study. While this is also true for the research presented in this thesis, at the same time the six sections of the review could be regarded as points on a map of the research territory, with other points existing on the map but not visible in this research. These co-existing perspectives of the literature review are important, because they set the scene for what this research is ultimately trying to achieve: production of something new and different within *and* against the existing (fixed) structures that define academic research.

The first part of the literature review describes the target group of this research, Freelance Language Teachers (FTLs) and the challenges they face in pursuit of PD. Section 2.3 presents and discusses different approaches to (language) teacher PD, which can be defined as *learning as acquisition*, *learning as participation* and *learning as becoming*. *Learning as acquisition* and *learning as participation* constitute two directions in Second Language Teacher Education and hence inform the initial knowledge-base for language teacher practice, as section 2.4 shows. The literature review then focuses on (language) teachers' PD and social media to explore the existing research approaches in this field. At the end of this chapter I will argue that existing research approaches do not consider the socio-technological complexities and dynamics that are entailed in (language) teachers' Twitter-based PD.

## **2.1 Freelance language teachers' professional development**

Freelance language teachers' professional development (PD) is a difficult research terrain, because freelance language teachers (FLTs) are a diverse group of people, and teacher PD is a topic which is contested in academic literature.

### **2.1.1 Freelance language teachers**

Research (Locke, 2014; Broad, 2015) suggests that freelance teachers, who are also known as part-time teachers, self-employed teachers, casually employed teachers, sessional staff or adjunct staff, are in strong demand in educational sectors concerned with teaching adults. However, it is very difficult to obtain numbers for this group of teachers, due to definitional and statistical problems (Tomkinson, 2013). Statistical data pertaining to the employment situation of freelance teachers in Higher Education in the US (United States Census Bureau, 2012) and in Australia (Percy, Scoufis, Parry, Goody, Hicks, Macdonald, Martinez, Szorenyi-Reischl, Ryan, Wills & Sheridan, 2008) indicate that up to 50% of academic staff could be casually employed in these two countries. In Europe, figures available for freelance teachers working in adult education, i.e. post-compulsory education, in Germany (WSF – Wirtschaft und Sozialforschung, 2005) and Austria (Vater & Zwielerhner, 2013) suggest that up to 96% of all staff employed work on a freelance basis. Unfortunately, these statistics do not tell us the percentage of language teachers working on a freelance basis.

Information provided by FLT's themselves is useful for gaining insight into FLT's' working conditions, a topic that is closely related to PD (Stickler & Emke, 2015). The book *Teacher Stories: Stories from the Edges of Language Teaching* (Walsh, 2015) contains stories from six FLT's who report the difficulties FLT's face in their work in different parts of the world: low pay, insecure work contracts, lack of social benefits and

paid holidays, job isolation, bad language school management. The experiences described in these stories are corroborated by newspaper articles (Weale, 2016; Edwards, 2017) and by FLT's blog posts (Griffin, 2016; Ritchie, 2015), with one FLT stating that "Being self-employed, although incredibly rewarding and liberating, is one of the hardest things I have ever done." (Ritchie, 2015, n.p.). Other blog posts show that FLT's turn to social media to combat job isolation (Carey, 2016) and that PD can be used to overcome feelings of not-belonging to a professional community (Nobre, 2016).

As noted above, freelance teachers are a diverse group. Brand (2013) has referred to part-time teachers in higher education as the "lost (or invisible) tribe" (p. XV), and saw them as being lost in complex national and international terminology used to describe part-time teaching posts and employment situations. According to the author, part-time teachers are "rarely included in structural changes or developments and frequently work in the shadows with minimal support or recognition" (p. XV). While Brand's description might sound slightly dramatic, it emphasises both the definitional and occupational problems part-time teachers face. Gilbert (2013) asserted that "though the literature [on part-time teachers in higher education] is broad and interesting, every study refers to a different group of people and every definition is different" (p. 5).

Harvey, Fraser and Bowes (2005) distinguished between three groups of sessional academic staff: casual, contract and part-time. One group that is notably missing from this typology is the group of self-employed language teachers. Some teachers in this group work on a contractual basis as described in the typology. However, from my own experience as FLT I know that some language teachers work completely independently, which means that they have to find their own customers,

perform teaching and deal with administrative tasks, such as invoicing. Adding this group to Harvey et al.'s typology leads to the following table:

**Table 2.1** Typology of Freelance Language Teachers (FLTs), adapted from Harvey et al. (2005)

Casual	Employment without leave entitlements. More frequently an employer will offer you hours to fit in with the operational requirements of the organisation, e.g., the days and hours when tutorials are held. There is no expectation of regular or continuing employment.
Contract	Set as a fixed term period of work or for the duration of a specific task or project, e.g., teaching a unit over one semester.
Part-time	You work a proportion of a "normal" working week with pro-rata benefits and job security, e.g. if you work a 50% load, you are entitled to 50% holiday pay. A pre-arranged regularity of the hours of work exists.
Self-employed	Language teacher entrepreneurs who have their own customers, perform teaching according to customer demand and deal with all administrative work on their own.

Informed by the literature (Beaton & Gilbert, 2013) and the typology in Table 2.1 I originally considered adopting the term 'part-time language teacher' for the target group this research is concerned with. This term is commonly used in the UK (Bryson, 2013). However, feedback from FLT's during the pilot study (see Chapter 4) has shown that the term 'part-time' is ambiguous and leads to misunderstandings, not least among the target group. Therefore I decided to adopt the term 'freelance language teacher'

(FLT) to describe teachers who are engaged in language teaching for one or multiple educational organisations in one or multiple educational sectors without a full-time, permanent work contract. This definition is broad enough to allow for different employment situations that FLT's may find themselves in, such as complete self-employment, a combination of a part-time teaching position and self-employed teaching, or several part-time teaching positions in the sense described in the typology above. At the same time this definition is narrow enough to distinguish FLT's from language teachers who work full-time for one educational organisation on a standard, permanent contractual basis.

### **2.1.2 Challenges in freelance language teachers' professional development**

Teachers who work full-time for one educational organisation on a standard, permanent contract usually have full access to in-service PD, but employers are often ill equipped to provide adequate support for part-time teachers' PD (Beaton & Gilbert, 2013; Heath et. al., 2015). Despite a growing understanding that educators teaching adults "play a key role in making lifelong learning happen" (Nijssen, van Lakerveld, Buiskool, den Oudendammer, Broek, & Hake, 2008, p. 3) and therefore need to continuously update their teaching skills (Buiskool & Broek, 2011), part-time teachers' PD still faces many challenges, such as lack of institutional support (Bryson, 2013; Beaton & Gilbert, 2013; Wickham, 2015) and a mismatch between institutional PD offers and teachers' development needs (Stickler & Emke, 2015). According to a survey of English Language Teachers in France carried out by the professional body TESOL (Teachers of English to Speakers of Other Languages) France in 2014, "Teachers expressed a strong desire for more training and professional development, but bemoaned the lack of training provided by employers, the shortage of funds" (Wickham, 2015, p. 10). The study yielded a total of 846 responses, which was



estimated to account for 10% of all English teachers in France at the time. Teachers working exclusively in the state education system were eliminated from the study, so that this sample is in line with the definition of FLT's provided above.

The study found that major problems for English teachers included the high workload and the high time commitment involved in teaching for more than one organisation, some of which was unpaid (administrative work, travelling time, teaching preparation time).

Overall, it has become increasingly difficult for FLT's to define their workplaces. The global shift towards 'educational managerialism' (Kerr & Wickham, 2017, n.p.) with its focus on efficacy and learning outcomes, coupled with the rapid growth of digital technologies for language teaching and learning provide new job opportunities for FLT's but also pose new challenges for FLT's' PD. Teaching languages according to customers' demands enables FLT's to specialise in certain market segments, such as pre-school language teaching or language teaching for specific professions. Teaching languages online enables FLT's to find new employment opportunities worldwide: FLT's and their language students can live in entirely different parts of the world and only meet online during their language 'class'. However, to be able to profit from these new work opportunities, FLT's

“will need to develop and extend their skill sets (especially their online skills and visibility and their specialised knowledge), to differentiate themselves from competitors and to be able to demonstrate that they are in tune with current demands.” (Kerr & Wickham, 2017, n.p.)

Heavy workloads and employers' 'teaching on demand' expectations do not only adversely affect participation in formal PD programmes but also constitute major

obstacles for career development, as Hose and Ford (2014) noted for adjunct academic staff in the USA:

“The demands of our schedules have conflicted directly with the ritual tasks of the earnest applicant to the tenure track or the ambitious post-doctoral worker. Writing, attending conferences, engaging in professional life, applying for jobs, conducting fieldwork in remote locations: the necessity to keep working overwhelms all other considerations.” (p. 53)

In conclusion, a growing demand for competent part-time teachers has not led to an improvement in FLT's PD situation. Therefore this group of language teachers needs to consider alternative ways and forms to develop professionally.

## **2.2 Approaches to teacher professional development**

There is a vast body of research on teacher PD. One reason for this is that researchers use different expressions when they refer to teacher PD, another reason is that teacher PD is a complex – and often controversial – construct.

Teacher PD can be referred to as teacher training, teacher education, (continuous) PD, academic PD or simply teacher learning, and definitions of these terms have not always been clear (Elliot, 2009). For language teacher development Mann (2005) tried to “provide a detailed topography of the ‘development’ landscape” (p. 104) and argued that the expression ‘teacher development’ comprises a broader scope of developmental activities than the narrower, more career-oriented expression ‘PD’. While the term PD is certainly not uncontested it could be argued that the boundaries between professional and personal learning are not as strictly delineated as

Mann suggested and have been even more blurred by the rise of social media and mobile technology.

### **2.2.1 Teacher professional development and teacher learning**

Avalos (2011) conducted a ten-year review of articles relating to teacher PD, and her findings provide an insight into the wide array of research areas connected to this topic. In her review the author identified five thematic areas: professional learning; mediations through facilitation and collaboration; conditions and factors influencing PD; effectiveness of PD, and specific areas and issues. Of the 111 articles included in Avalos' literature review, 33 (29.73%) refer to the category of professional learning. From her research Avalos concluded that "PD is about teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students' growth." (Avalos, 2011, p. 10). As noted above, there is no clear distinction in the literature between teacher professional development and teacher learning. This is not surprising, as it could be argued that learning is at the heart of human development. Conversely, it could also be argued that a developmental perspective is an integral element of learning. I will use the term teacher professional development in this thesis, as it entails a notion of *learning as becoming* (Boud & Hager, 2012) that is relevant to the discussion in section 2.3.

In the literature a close connection between PD, effectivity and improved student learning can be found, exemplified in works by Darling-Hammond and Mclaughlin (1995) and Borko (2004). Drawing on these authors, Rutherford (2010) claimed that effective PD needs to be "[c]ollaborative and involving the sharing of knowledge, [...] [p]articipant driven and constructivist in nature" (p. 63). Mann (2005) has supported these notions and asserted that self-directed, bottom-up development is core to the development of language teachers. Drawing on a review of literature

pertaining to the development of language teachers he argued that “teachers develop by studying their own practice, collecting data and using reflective processes as the basis for evaluation and change.” (Mann, 2005, p. 103), and that social interactions, such as collaboration or co-operation, can support this developmental process.

However, Korthagen (2016) found overwhelming evidence of a theory-practice gap in the academic literature: “A lot of knowledge is available about how teaching could become more effective at influencing student learning, and it would be ideal if this knowledge would be applied by teachers.” (p. 1). This notion is supported by Johnson (2016) who regarded “the theory/practice dichotomy” (p. 123) as a central challenge in language teacher education.

Other criticism of the link between teacher PD and student learning came from Kennedy (2014), who asserted “a policy trajectory that promotes good teacher learning as central to good pupil learning” (p. 691) but criticised the fact that this has led to a trend towards instrumental teacher PD which evaluates teacher quality on the basis of pupils’ performances in standardized tests, neglecting teachers’ continuing professional development (CDP). Based on her review of main developments in teacher PD literature between 2004 and 2014 Kennedy concluded that “the state of the literature on teachers’ CPD as a whole is partial in its coverage, is fragmented and is under-theorised” (p. 689).

This section has shown that PD discourses are closely related to teacher learning and student learning. However, views on learning vary widely among researchers. The next section will look at different understandings of learning. While a comprehensive overview of existing contemporary theories of learning is provided elsewhere (see for example Illeris (2009)), the purpose of the next sections is to trace ontological

assumptions that underpin contemporary understandings of learning and to raise problematic issues posed by these understandings.

### **2.3 Metaphors for learning**

Sfard (1998) suggested defining learning by using metaphors instead of concentrating on particular learning theories, because metaphors are helpful in revealing the deep-rooted assumptions and beliefs which underpin academics' research and are not always openly stated. This approach is particularly useful for this thesis, as ontological beliefs will play an important role.

#### **2.3.1 Learning as acquisition**

In her article, Sfard (1998) distinguished between learning as acquisition and learning as participation. The first metaphor essentially sees learning based on units of knowledge that can be acquired, accumulated, stored and transferred to different environments, also referred to as transfer of learning (Haskell, 2001). The learner is regarded as the possessor of knowledge, skills and abilities and "the human mind as a container to be filled with certain materials" (Sfard, 1998, p. 5).

The learning as acquisition and the transfer of learning metaphors have been associated with formal teacher PD programmes, which still seem central to both academic and policy discourse on teacher PD (Hodkinson & Hodkinson, 2005; Webster-Wright, 2007). Webster-Wright's (2007) review of 203 academic articles pertaining to professional development found that the majority of these articles, both research and practice based, dealt with selected aspects of PD programmes and content, "rather than studying the holistic, situated experience of learning" (Webster Wright, p. 711). Kennedy (2016) investigated the connection between teacher PD programmes and improved teaching by reviewing academic studies pertaining to K-12 (comprising

primary and secondary education) general education in the United States in the period 1975-2014. In her research Kennedy found that some teacher PD programmes hindered student learning rather than helped it and concluded that “program design features may be unreliable predictors for program success” (p. 27). While both studies cover different areas, their findings emphasise the problems of content-focused PD programmes and a need for studying teacher practice more thoroughly and holistically.

With its focus on the human mind an understanding of *learning as acquisition* aligns well with cognitive-oriented approaches to second language acquisition (SLA), which exist in language teacher education research (Johnson, 2016). Separating language learning and language use, “the goal of cognitive-oriented SLA is to empirically document the increasing complexity and developing fluency of language learners’ mental grammar” (Johnson, 2016, p. 124).

Illeris (2009) contended that “whereas learning traditionally has been understood mainly as the acquisition of knowledge and skills, today the concept covers a much larger field” (p. 1). Further critique of the *learning as acquisition* metaphor relates to its focus on assumed deficits (Hodkinson & Hodkinson, 2005), its neglect of the context and the sociocultural environment, e.g. the workplace, in which the learning takes place (Hager & Hodkinson, 2009) and its over-simplification of professional practice as transfer of previously acquired theory (Boud & Hager, 2012).

### **2.3.2 Learning as participation**

The second metaphor investigated in Sfard’s (1998) article, *learning as participation*, understands humans as essentially social beings and focuses on the social context in which learning takes place through negotiations, e.g. in a community of practice (Lave & Wenger, 1991). The learner “should be viewed as a person interested

in participation in certain kinds of activities rather than in the accumulation of private possessions” (Sfard, 1998, p. 6). *Learning as participation* is at the heart of the ‘socio-cultural turn’ (Johnson, 2006) in SLA. Proponents of this view see language learning “as building capacity to function in relevant socio-cultural contexts; [...] and as accessing resources and making choices about *how to be* in the target language community.” (Johnson, 2016, p. 124). With regard to the use of social media for professional learning Fox and Bird (2017a) asserted that it is “widely accepted that learning is a social activity” (p. 66) and that the social participatory metaphor is integral to the design of social media platforms.

However, this shift towards regarding learning as a complex, socio-cultural and socio-constructivist activity (Vygotsky, 1978), embedded in a community of practitioners, is not uncontested. Elkjaer (2003) criticised the implication that “this perspective on learning happens at the expense of a description of the actual learning process — *how* does learning come about through participation?” (p. 488), and Hager and Hodkinson (2009) claimed that studies carried out under the *learning as participation* lens have tended to investigate learning in one workplace, neglecting learning that took place in previous contexts. A further critique that could be brought forward against the *learning as participation* metaphor is its assumed linearity in the developmental movement from novice to expert, exemplified in the learning in a community of practice model (Lave & Wenger, 1991).

### **2.3.3 Learning as becoming**

In response to their criticism of *learning as acquisition/transfer* and *learning as participation* Hager and Hodkinson (2009) developed a practice-oriented approach for advancing understanding of professional learning by combining three metaphors: *learning as participation*, *learning as reconstruction* and *learning as becoming*. Based

on the premise that “all human learning entails participation in a social context” (p. 628) the authors argued that *learning as reconstruction* relates to more than a transformation and reconstruction of learners’ existing knowledge, skills and understanding through ‘scaffolding’. Instead, the authors claimed the existence of a reciprocal influence between the learner and the context that leads to changes within the learner and the context in which learning occurs. Contrary to an understanding of knowledge as an object that can be transferred to different contexts, Hager and Hodkinson were convinced “that it is people who move, not knowledge or learning” (p. 630).

In this approach learners are regarded as people who are constantly in a “process of transition” (p. 631) from one learning context to another, e.g. from one workplace to the next, and learning as a “relational web, a process of ongoing change” (p. 631), which “connects the learner to the surrounding world in an evolving way” (p. 631). This fundamental shift in perspective then led the authors to adopt the metaphor of *learning as becoming*, since “people become through learning and learn through becoming whether they wish to do so or not, and whether they are aware of the process or not” (p. 633). In a later work Boud and Hager (2012) explained the connection between *learning as becoming* and PD by referring to the biological connotation of the word ‘development’, which “encapsulates the idea that professionals are in the process of becoming” (p. 20). While this analogy emphasises that development is an ongoing process of change, it also implicitly assumes a certain linearity of the process that could be expressed in stages, e.g. birth, youth, maturity, death.

The metaphor of *learning as becoming* aligns well with Webster-Wright’s (2009) concept of continuing professional learning (CPL) for practising professionals. Both Webster-Wright’s and Boud and Hager’s concepts see professional learning firmly rooted in the lived experience of professional practice(s) and emphasise the dynamic,



evolving relationship between the learner and the context(s) in which learning occurs: “Learning is directly implicated in practice, and learning can be represented as an outcome of participating in practice.” (Boud and Hager, 2012, p. 23).

Boud and Hager’s (2009) hybrid approach brings interesting new perspectives to this research. By placing practice firmly in the centre of (academic) attention the authors open up the academic discussion towards investigations into a relational approach to learning and towards an understanding of becoming as a reciprocal process that influences not only human but also non-human factors, i.e. the ‘context’.

However, this approach, like the learning metaphors considered before, foregrounds a human-centred perspective in the ‘relational web’ rather than the human-non-human web relations. For research into the relations between teacher PD and social media this dominance of a human-centred perspective has led to a biased view with regard to technology, as will be shown in section 2.5. Before I come to that, however, I will briefly outline the connections between the *learning as acquisition* and *learning as participation* metaphors with Second Language Teacher Education (SLTE). This is relevant as SLTE often provides the initial knowledge base for (freelance) language teachers’ practice.

#### **2.4 Second language teacher education and language teachers’ practice**

Language teacher PD is inextricably linked to questions about what it means to teach, i.e. questions about the practice of language teaching. Wright (2010) provided a review of perspectives on language teacher practice in the field of second language teacher education (SLTE). The author delineated two different historical developments in SLTE: a theory-practice view informed by Linguistics and Applied Linguistics, and perspectives on teacher practice which “typically theorised accounts of practice”

(Wright, 2010, p, 265) and drew on fields outside SLTE. The first view espoused an understanding of teacher practice as applied theory, focusing on methods and techniques, which aligns with the *learning as acquisition* metaphor described in section 2.3.1. The second view on teacher practice in SLA encompassed perspectives which put the teacher and the context of teaching into the centre of attention.

One of the most prominent frameworks, which regards context as constitutional to language teaching, is provided by Freeman and Johnson (1998). In their article Freeman and Johnson placed “the activity of teaching” (p. 405), i.e. teaching practice, at the core of teacher education and described the language teacher as a lifelong learner, whose previous experiences and beliefs “are instrumental in shaping how they interpret what goes on in their classrooms” (p. 401). Drawing on socio-constructivism the authors contended that teaching is a “complex developmental process that operates through participation in the social practices and contexts associated with learning and teaching.” (p. 402). The authors’ framework for a re-conceptualisation of the knowledge-base in language teacher education consists of three interdependent domains (teacher, social contexts of schools and schooling, and pedagogical processes), which are linked through processes of participation and socialisation and through processes of creating communities of practice. Teacher learning is regarded as being inextricably linked with the socio-cultural contexts, in which learning takes place. This view aligns with the *learning as participation* metaphor described in section 2.3.2. While this view acknowledges the situatedness of teacher learning, it also sees language teachers, the activity of teaching (teaching as practice) and context as three distinctly different entities, which can be studied separately. Based on a humanist tradition, this view regards the teachers as “individuals with identities, knowledges and experiences who

are themselves engaged in an evolving trajectory of professional development” (Cross, 2018, p. 2), i.e. as agentic and social subjects.

Notions of ‘context’ are also central to the ‘sociocultural’ turn in SLTE (Johnson, 2006, 2016). This paradigm regards teacher learning as “emerging out of and through experiences in social contexts” (Johnson, 2006, p. 239). Put differently, transformations in teacher identity and in teaching practice happen through acts of negotiation, interpretation (meaning-making) and mediation (e.g. tools) in social contexts. However, the focus on human meaning-making and interpretation relegates non-human elements, such as technology, to a secondary position and promotes views of technology as an object. These ideas will be explored in the next section.

## **2.5 Human-technological relations**

In section 2.3 learning metaphors were used to distinguish different ontological understandings of learning. Other ways to outline ontological differences include looking at a topic historically or comparing and contrasting different ontologies with regard to the views they represent, e.g. towards technology. For my thesis, an investigation of the research questions that have guided current studies in the Twitter-in-education research territory was helpful, because research questions do not only reveal the researchers’ interests but also his/her underlying ontological assumptions.

### **2.5.1 The received view and the contextual view**

In his work about the Deleuzo-Guattarian concept of *assemblage* Wise (2011) explored research views regarding human-technological relations. Wise based his argument for a different view of human-technological relations on the work *Culture and Technology* (Slack & Wise, 2005) and claimed that the dominant perspectives in current

research concerned with human-technological relations are the ‘received view’ and the ‘contextual view’.

According to Wise (2011), the dominant or *received view* of culture and technology regards humans and technology as different entities that can be studied separately: “[A]ccording to this view I may be surrounded by technologies (phones, calculators, spreadsheets) but they are external to myself: mere tools” (Wise, 2011, p. 95). Wise exemplified the *received view* with the help of possible research questions in a study on mobile phones. Such a study could be looking at the impact or the effects that mobile phones have on particular sections of society, such as teenagers. Further research questions might look at the usefulness of specific mobile phone features or functions to determine to what extent they contribute to a desired outcome.

The embedded or *contextual view* in research about human-technological relations” argues that we need to examine these technologies in context” (Wise, 2011, p. 96). According to Wise (2011), the main difference between the *received view* and the *contextual view* is that the latter approach “sees social determinism or technological determinism as contextual rather than absolute” (p. 96). Wise criticised that the *contextual view* “still treats the mobile phone as a singular entity, something that was not part of the context, that was introduced to the context, and is now used in the context.” (p. 97). Possible research questions, which would align with this view in a study on mobile phones, might look at contextual user experiences and practices, such as the use of mobile phones by teenagers in different countries.

In returning to the focus of this thesis, Wise’s approach is helpful for distinguishing underlying ontological views in current research concerned with teachers’ Twitter-based PD. A closer look at recent studies on teachers’ Twitter-based

professional learning and development reveals that some research questions hint at an underlying ontology that seems to align with a *received view* or a *contextual view*. It is beyond the scope of this thesis to provide a comprehensive review of the academic literature covering teachers' Twitter-based PD with regard to research questions that are representative of the *received view* or the *contextual view* of human-technological relations. Instead, the examples presented here serve as indicators that the *received view* and *the contextual view* are popular research perspectives in the field of teachers' Twitter-based PD.

Carpenter and Krutka (2014, 2015) investigated educators' Twitter practices for effective professional development in their mixed-methods study and asked 'How and why do educators use Twitter?'. The authors regarded Twitter as a medium, tool and service (Carpenter & Krutka, 2014, p. 415), i.e. as a separate entity from humans, and demonstrated their instrumental perspective further by claiming that "[T]he question is not whether educators will use Twitter and other social media services, but how can they use such services most effectively and wisely?" (p. 431).

Other researchers have raised similar questions across educational contexts. For example, O'Keefe (2016) asked 'How are activities on Twitter supporting the learning of HE professionals?' in her study about the use of Twitter in Higher Education. Pertaining to school education Visser, Evering and Barrett (2014) enquired 'What do teachers perceive to be the benefits of Twitter?'. Forte et al.'s (2012) research was interested in school teachers' use of Twitter and its perceived benefits, apparent from the research questions 'How are common communication media like Twitter being appropriated in educational contexts by teachers?' and 'What kind of impact do teachers who appropriate such technologies perceive on their teaching practices and educational organizations?'. With regard to language teachers Lord and Lomicka's (2014) research

question ‘Does the microblogging medium, specifically Twitter, allow participants to develop a sense of community?’ hints at the researchers’ interest in investigating the use of Twitter (*received view*) for building a language teacher community of practice (*contextual view*).

Central to both the *received view* and the *contextual view* in research about human-technological is an understanding that humans use, manipulate and control ‘objective’ technology to achieve their (learning) objectives. However, this assumption asserts agency entirely to humans and not to the complex and dynamic human-non-human processes involved in networked learning. Before I outline a different, relational research approach, I will briefly expound the problem of the autonomous human subject in networked learning in the next section.

### **2.5.2 On human agency in networked learning**

Dron and Anderson (2014) posited that networked learning is not new. Instead, networks are “a central social form in human societies” (Dron & Anderson, 2014, p. 131). Networks are essentially “constituted in connections” (Dron & Anderson, 2014, p. 132) and do not necessarily include humans (see for instance networks of technical devices). However, educational research seems to be mainly concerned with the human element in the encounters that occur on social networking sites (as platforms), with social networking sites (as tools) and through social networking sites (as media), as visible from the research questions listed in the previous section. Some researchers also regard social networking sites as ‘space’ (e.g. Rehm & Notten, 2016).

In line with an anthropocentric focus the literature on personal learning networks (PLNs) has grown substantially in recent years (Fiedler & Våljataga, 2011). A PLN can be described as “a set of connections to people and resources both offline and online

who [sic] enrich our learning” (Richardson & Mancabelli, 2011, p. 2), and its underlying characteristics are seen to include openness, reciprocity and a willingness to share information (Siemens, 2004; Downes, 2006,). While the perspectives about PLNs vary slightly with regard to the emphasis they place on the ‘environment’ (Fiedler & Våljataga, 2011), the dominant view in research concerned with human learning networks might be best described with the help of Attwell’s (2009) definition. According to Attwell, human learning networks (which he calls Personal Learning Environment (PLE)) can be regarded as “a portal to the world through which learners can explore and create, according to their own interests and directions, interacting as they choose, with their friends and the learning community” (Attwell, 2009, p. 120).

In Attwell’s definition two popular perspectives of PLNs are summarised: notions of individualised learning and notions of community learning. Individualised learning includes notions of self-directed learning (Knowles, 1975; Brocket & Hiemstra, 1991) and self-determined learning (Hase & Kanyon, 2007), while community learning focuses on social learning in a community of practice (Lave & Wenger, 1991) or community of inquiry (Garrison, Anderson, Archer, 1999). In research that is concerned with teachers’ Twitter-based PD these two research directions are exemplified in the titles of the following publications: *#TwitterforTeachers: The implications of Twitter as a Self-Directed Professional Development Tool for K-12 Teachers* (Visser et al., 2014), *Twitter as a tool to promote community among language teachers* (Lord & Lomicka, 2014) and *Investigating the Community of Practice of World Language Educators on Twitter* (Wesely, 2013).

In both research directions, however, the autonomous human subject is firmly placed in the centre of (research) attention of investigations into networked learning. Hence, agency is attributed to humans only, and not to the relations within networked

learning, which include non-human elements. Dron and Anderson (2014) commented on the paradoxical relationship between the individual and the network: “Perhaps ironically, this most centrally social of forms is focused entirely on the individual and that individual’s relations with others in the network” (p. 162).

In summary, current research into human-technological relations favours a *received view* and a *contextual view*, which regards humans and technology as separate entities and asserts the human dominance over technology. An anthropocentric view, which regards technology as an ‘objective or ‘neutral’ entity, dominates current research approaches in the field of networked learning, which also includes research on teachers’ Twitter-based PD.

A radically different research approach, which will be presented in the Chapters 3 and 4 of this thesis, shifts the research focus from an ego-centred to a multi-perspective, relational view of networked learning. In this new perspective agency and power of change lie within human-non-human assemblages. However, before I describe this new approach and its results in detail, I will consider the relations between (language) teachers’ PD and Twitter in the last part of the literature review.

## **2.6 (Language) Teacher professional development and social media**

The final section of this chapter will broadly explore the connection between technology and teacher PD. The purpose is to show the relevance of technology for (language) teachers’ professional practices and the relationship between teachers’ professional and personal use of technology. The focus is then narrowed to investigate teacher PD and social media and, even more specific, to (language) teachers’ Twitter-based PD.



### 2.6.1 Technology and teacher professional development

In their book *Beyond the digital divide* Selwyn and Facer (2007) described the place of Information and Communication Technology (ICT) in modern society as “firmly at the heart of the interconnected logic of the 21<sup>st</sup> century life” (p. 5).

According to the authors, this has led to the development of new digital practices and different societal expectations with regard to competencies and skills required for ‘effective’ membership:

“The successful individual is therefore required to be reflective and reflexive, building upon and learning from past experiences and reacting to new opportunities and circumstances. Crucially, ICT is seen to be an integral element of these new ways-of-being, playing important roles in underpinning an individual’s reflexive judgement and social action.” (p. 8-9)

The demands on the individual in terms of being a constant digital learner are exacerbated in the teaching profession, where teachers are expected to act as role models for their students. In line with an understanding of *learning as acquisition* and *transfer of learning* teacher digital competency has been linked to student digital competency. This is exemplified both in scholarly research (see section 2.3) and in the European Union’s recently published European Framework for the Digital Competence of Educators (DigCompEdu) (Redecker & Punie, 2017). The corresponding website (<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/european-framework-digital-competence-educators-digcompedu>) claims that “the ubiquity of digital devices and the duty to help students become digitally competent requires educators to develop their own digital competence.” The DigCompEdu framework is designed to guide national and regional policy approaches

and to feed directly into professional development tools or programmes. In the field of language teaching and learning professional bodies, such as the American Council on the Teaching of Foreign Languages (ACTFL) and the British Council have adopted teacher recommendations for an increased integration of technology in language teaching to enhance student learning (ACTFL, 2017; Kessler, 2017; Motteram, 2013). These societal and professional expectations have brought teachers' personal use of technology into academic focus.

Tour (2015) investigated language teachers' personal use of technology and their use of technology in teaching to explore the connections between the personal and the teaching domain. In her qualitative study the author used participant-generated photographs in her interviews with participants to facilitate "the production of detailed stories about participants' practices" (p. 128). While the form of the method differed in my research (use of tweets instead of photographs; online interviews instead of face-to-face interviews), I also found employing visual representations in an interview very beneficial for tracing FTLs' tweeting practices, as Chapter 4 will show.

From her qualitative research the author concluded that there were similar patterns in participants' private use and professional use of technology:

"This means that teachers' use of digital technologies in classrooms is not isolated. Their everyday digital literacy practices and digital mindsets are not left behind at the classroom door: they are brought into the classroom and influence what happens there and in the ways they thought about technology and used it in their teaching." (p. 136).

Interestingly, the author did not mention if and in what way(s) teachers' professional use of technology also influenced their personal use, i.e. whether there was a reciprocal relationship between professional and personal practices.

Kessler (2017) evoked the connection between teacher learning and student learning discussed above to criticise the discrepancy between language teachers' personal use of technology and their professional use for Computer Assisted Language Learning (CALL):

“We are also teaching students who expect us to use social technologies in ways that align with their established social practices. In fact, such technology use has become so ubiquitous in our daily lives that the absence in our classrooms is quite noticeable.” (p. 206).

With regard to language teacher preparation the author called for an integration of existing standards into language teacher preparation programmes, such as the Teachers of English to Speakers of Other Languages (TESOL) Technology Standards (Healy, Hanson-Smith, Hubbard, Ioannou-Georgious, Kessler & Ware, 2011). Other researchers have advocated the use of such frameworks for online language teaching (Compton, 2009) and Mobile Assisted Language Learning (MALL) (Kukulka-Hulme, Norris & Donohue, 2015). One area of teachers' personal and professional use of technology seems to have caught researchers' particular interest: the use of social media.

### **2.6.2 Teacher professional development and social media**

Academic interest in the relation between teacher PD and social media has grown in recent years, exemplified in Piotrowski's (2015) analysis of 29 doctoral theses pertaining to social media use in education. From his review the author concluded that

educators seem to be more cautious with regard to the use and application of social media in educational contexts than students. These concerns were echoed in Fox and Bird's (2017b) study of English school teachers' use of social media. In their mixed-methods study teachers reported tensions between professional and personal use of social media. The study also found that despite negative social media impact individual teachers "will continue to experiment covertly" (Fox & Bird, 2017b, p. 671).

For language education Kessler (2017) argued that language teachers' social media practices need to become more fully integrated with their language teaching, because "technology use has become so ubiquitous in our daily lives that the absence in our classroom is quite noticeable" (p. 2). Echoing Selwyn and Facer's (2007) claims about societal expectations with regard to the individual use of technology for learning, Kessler posited that using technology for personal lives "has become an expected societal norm." (Kessler, 2017, p. 2).

However, investigations into professional uses of social media (Fox & Bird, 2017a) and social media practices at the workplace (Manca & Whitworth, 2018) are still scarce. Fox and Bird's (2017a) review of studies about teachers' and doctors' use of social media for PD found that not all studies pertained directly to professional learning. Instead, researchers' work contributed to a growing body of knowledge on teachers' and doctors' professional use of social media, their attitudes and perceived concerns and benefits. Although the authors recognised the value of such work, they warned that "further research is needed to more fully inform professionals about effective social media use as part of their ongoing continuing professional learning." (p. 78). My thesis will answer this call by investigating FLT's Twitter practices within a different ontology (see Chapter 3) and through a combination of research methods (which are seen as pathways, as Chapter 4 will explain) that will provide new and different insights

into the relationship between (language) teachers' practices and Twitter-based PD. The next section will look at Twitter in more detail to show that it is much more than a simple tool.

### **2.6.3 On Twitter**

Twitter (<https://twitter.com/>) is a microblogging service which allows its users to share information and communicate with other Twitter users in real time via written messages, called 'tweets'. Twitter was founded in 2006 and has around 330 million active users, according to the US digital marketing company Zephoria (Noyes, 2018). Public tweets can be read by anyone, even without prior registration. However, users can also exchange direct messages, not visible to the public. Registered Twitter users can send tweets of 280 characters or less (October 2018) or reply to tweets. Messages can be directed to individual human or non-human (bots) accounts using the 'at sign' (@) or to an online community by using a hashtag (#). Bots are software applications which perform automated tasks, such as searching Twitter for specific content in tweets or tweeting pre-designed content at a specific time.

The hashtag also serves as a way to categorise topics, educational chats or tweets on Twitter. Figure 2.6 shows the author's Twitter profile (<https://twitter.com/MartinaEmke>) and timeline in April 2018 to illustrate Twitter's overall layout. It should be noted that this is the web version view of Twitter, which I mainly used throughout my research.

**Figure 2.1** Author's Twitter profile (April 2018)

The picture that shows at the top of a user's profile can be individualised, as can the profile text on the left underneath the user name and Twitter handle (here: @MartinaEmke). In the centre of Figure 2.1 the user's timeline, i.e. all publicly visible tweets, retweets and replies from this user, can be seen in reverse chronological order. The user can choose to pin a tweet at the top of his or her timeline. Anyone who looks at the user's profile or at his/her tweets will see the pinned tweet first, until it is taken down or replaced by another tweet. Figure 2.1 shows a pinned tweet through which I wanted to make other Twitter users aware of a blog post I had written about openness at a language teacher conference.

An important feature of Twitter, which will be elaborated in the section on the 'Twitter machine' (Chapter 4.4), are the Twitter metrics above the timeline and on the right in Figure 2.1. These metrics consist of the overall number of a user's tweets and retweets (7856 in the example), the number of people a user follows, also called 'followings' (689), the number of people who follow this user, i.e. 'followers' (1,050), and the number of likes a user has given to tweets (1,252). Twitter also provides features that are called 'list' and 'moments', which help Twitter users filter tweets. The

'list' feature enables users to create a list or lists of Twitter accounts they find interesting or to subscribe to a list curated by another Twitter user. Twitter moments enable users to stitch together multiple tweets into slideshow-like stories. Twitter moments was launched in September 2016 to allow users to arrange selected tweets focused on a topic. Further metrics can be found on the right (see Figure 2.1), where Twitter shows a bar chart that depicts the number of impressions the user's tweets and retweets received in the previous week, i.e. how many times the user's tweets were seen by other Twitter users. Underneath this bar chart Twitter provides user recommendations, such as who a user could follow (signified by "Wem folgen?" in Figure 2.1), or which hashtags are currently trending on Twitter (not visible in Figure 2.1.).

For academic research Twitter currently offers distinct advantages over Facebook in terms of access to content (Twitter's Application Programming Interface (API) allows open access to data, whereas Facebook does not provide this feature) and data visibility (Twitter's algorithm does not (yet) restrict tweet visibility, while Facebook's algorithm determines what users can see and what they cannot see). Although Twitter incorporated changes to its data and privacy policy to comply with the European General Data Protection Regulation in May 2018 (Twitter, n.d.), it is still possible to collect tweet data through the Twitter API (October 2018).

Twitter users who see themselves as 'connected educators' and use Twitter for their informal self-development praise its power because it enables them to pursue several learning interests at the same time (Araoz, 2015) and connects them with like-minded teachers and educational leaders (Kemp, 2011). Experiences and perceptions such as these may have provoked researchers to investigate educators' professional learning on Twitter in more detail.

#### **2.6.4 Twitter in academic research**

Gao, Luo and Zhang (2012) investigated 21 studies on the use of Twitter in education between 2008 and 2011 and found that microblogging seems to have “a potential to encourage participation, engagement, reflective thinking as well as collaborative learning under different settings” (p. 743). Other studies, which were not included in their review, emphasised the value of Twitter for self-directed teacher PD (Visser et al., 2014) and for school teachers’ informal learning and networking (Carpenter & Krutka, 2014, 2015). In academic professional development McPherson, Budge & Lemon (2015) found Twitter beneficial for identity development, while Quan-Haase, Martin and McCay-Peet, (2015) regarded Twitter useful for academic networked learning. Furthermore, Buchem (2012) contended that Twitter supports serendipitous learning, a form of learning that “is planned neither by the teacher nor by the learner” (p. 9), and which may reveal “interesting connections between seemingly unrelated bits of information“ (p. 13.). Twitter has also been claimed to have potential to foster educational reform through bridging isolated teacher networks (Forte et al., 2012).

The use of Twitter for educational purposes has also attracted the interest of doctoral researchers. The theses topics range from higher education professionals’ use of Twitter for learning (O’Keefe, 2016), over teacher professional development through participation in a Twitter chat (Britt, 2015) to Twitter’s role for the development of educational technology (Lowe, 2016).

In the area of language education researchers have investigated the role of Twitter for language teacher professional development in a community of practice (Lomicka & Lord, 2014; Wesely, 2013), for language teaching (Lord & Lomicka, 2012) and for formal and informal language learning (Rosell-Aguilar, 2018).



However, the value of Twitter for educational purposes is not undisputed. Criticism focuses on privacy issues (Grosbeck & Holotescu, 2008; Cho et al., 2013; Sheaman & Tinti-Kane, 2013); on educators' experience that using Twitter can be very time-consuming (Grosbeck & Holotescu, 2008; Carpenter & Krutka, 2015); on educators' unwillingness to question information from trusted contacts (Cho, Ro & Littenberg, 2013) and on technical issues relating to Twitter features such as the 140-character limit (Cho et al., 2013; Carpenter & Krutka, 2015). As the character limit has been raised to 280 characters since Cho et al.'s and Carpenter and Krutka's publications, similar research may well yield different results.

In language education Hattem and Lomicka (2016) conducted a critical analysis of Twitter research in language learning from 2009 to 2016. According to the authors, existing research suggests that microblogging supports interaction and communication (with native speakers), helps with community formation and encourages learners' noticing and their negotiations of meaning. However, Hattem and Lomicka concluded from their research that language learners may feel overwhelmed by the information overload and therefore need training in the use of Twitter. In a similar vein Xerri (2014), who had investigated language teachers' professional use of social networking, cautioned that unguided use may lead to ineffective PD.

Overall, researchers' interest in professional uses of Twitter has been growing in recent years and is diverse in nature. As noted by Fox and Bird (2017a), researchers' interests seem to focus predominantly on educators' uses of Twitter, attitudes and perceived advantages and disadvantages for professional development. However, this view ignores the complex socio-technological relations of teacher professional development on...*and* with...*and* through Twitter, which this thesis addresses.

## CHAPTER THREE: TOWARDS A NEW CONCEPTUAL FRAMEWORK

In September 2014 I went to a conference on the use of Open Educational Resources in Berlin. The keynote speaker was a high-ranking official from the Organisation for Economic Co-Operation and Development (OECD), and after his slightly provocative presentation a lively discussion ensued. I tweeted about this discussion and asked for the slides, mentioning the keynote speaker with his Twitter handle in my tweet. To my great surprise not only did the keynote speaker retweet my tweet and later tweeted a link to his slides but I also noticed that other people from the audience started to follow me on Twitter.

However, the same event showed that whether or not a tweet leads to actions or reactions depends on various factors and forces, a complex and dynamic assemblage of human and non-human elements. During this conference I tweeted about task-based learning, and one of the conference participants suggested in a tweet that we jointly deliver a best-practice workshop on that topic later that day. Unfortunately, I only saw this invitation on my way to the station because I was not in the habit of checking my Twitter timeline regularly, wanted to save battery and had a pre-booked train ticket. In this way a spontaneous opportunity for collaboration evolving on and with and through Twitter could not be realised due to constraints of time, technology and space.

I have chosen this anecdote to illustrate the relational nature of social network activities and the entanglement of human and non-human elements in the enactment of practices that involve social media. In this chapter and in the next I will explain this perspective further by providing a detailed account of a new research approach that is substantially different from the approaches to investigate teachers' Twitter-based PD outlined above. I believe that detailed descriptions of both the developmental process and the framework itself are needed to understand my reasons for disconnecting from a

phenomenological research tradition and for re-connecting with it in new and unexpected ways within an ontology that is grounded in an entirely different worldview. As a first step in this process, this chapter will focus on providing the ontological and conceptual background to my Deleuzo-Guattarian inspired research approach. The research approach as such will be described in Chapter 4.

### **3.1 Towards a Deleuzo-Guattarian inspired research approach**

As explained in the previous chapter, current research approaches to investigations into teacher PD involving social media favour human-centred perspectives, which separate humans and contextual factors, to which technology could be seen to belong.

Alternative, socio-material approaches seek to overcome the limitations of anthropocentric research (Bayne & Jandrić, 2017) and are therefore better suited to investigate the complicated and dynamic relations between humans and technology that are involved when humans and technology come together on Twitter (as a platform or a space), engage with Twitter (as a tool) and exchange through Twitter (as a medium that links to other media). Socio-materialism is not a unified school of thought but consists of very different approaches, such as Actor-Network-Theory, New Materialism and Complexity Theory (Fenwick, 2015). However, these socio-material approaches share roots that are grounded in a post-modern and post-humanistic rejection of dualisms and binaries such as “human/machine, human/animal, subject/object, self/other” (Bayne & Jandrić, 2017, p. 14). They are also grounded in notions which are supported by post-structuralism.

### 3.2 Post-structuralism

Post-structuralism is a philosophical movement that is associated with its major proponents, among them Foucault, Derrida, Lyotard and Deleuze. Williams (2014) asserted that there are “common threads” (p. 1) in post-structuralism, that radically distinguish this movement from other philosophical orientations. Contrary to structuralisms’ belief that secure knowledge can be found through establishing differences within structures which consist of a stable core and limits (boundaries), post-structuralism maintains that “any settled form of knowledge or moral good is made by its limits and cannot be defined independently of them” (p. 2). In other words, where structuralism seeks to establish rules and patterns to understand the core of a (social) phenomenon, post-structuralism traces the effects of the boundaries of a social phenomenon on this phenomenon: “The truth of a population is where it is changing. The truth of a nation is at its borders. The truth of a mind is in its limit cases.” (Williams, 2014, p. 2).

Post-structuralism understands limit as something that exists in its own right and not as something that exists in opposition to a core. Although post-structuralist thinkers vary greatly in their ideas of limit, they agree that “*the limit is an ungraspable thing that can only be approached through its function of disruption and change in the core. You cannot identify the limit, but you can trace its effects.*” (Williams, 2014, p. 3; italics in the original). Tracing the effects of limits is known as ‘difference’ in post-structuralism. Difference in post-structuralism does not refer to notions of sameness and difference, which underpin common understanding of structuralism, but to unlimited and open variations that work “to open up the core and to change our sense of its role as stable truth and value.” (p. 3). In summary, post-structuralism is not

interested in making a claim on how things are but seeks to investigate alternative realities and futures and to “resist and work against settled truths” (p. 3-4).

Although the language post-structuralist thinkers use to express their ideas is often highly theoretical, their approaches to disrupt existing structures are of a very practical nature: “They must take a given actual structure and deconstruct it, transform it, show its exclusions.” (p. 4) This research heeded this advice by considering both tweets and network structures in this investigation in an attempt to understand the structural workings of tweeting and their effects (productions) on both teacher practice and teacher self (teacher subjectivities). A thorough account of how tweets and hashtags were investigated will follow in the next chapter. Before we come to that, however, the next section will define the terms ‘post-modernism’, ‘post-humanism’ and ‘anti-representation’, which are essential for understanding the main tenets of Deleuzo-Guattarian philosophy and their concepts of *rhizome*, *assemblage* and *becoming*.

### **3.2.1 Post-modernism, post-humanism and anti-representation**

There is no single unifying definition of post-modernism or post-humanism. And how could there be, since the foundation of both movements lies in the post-structuralist defiance of a universal truth? Burgess, Sieminski and Arthur (2006) emphasised that the postmodernism paradigm “argues that locally limited, situational narratives are now required instead of ‘grand theories’”, as expressed in Haraway’s (1988) notion of ‘situated knowledges’. The Encyclopaedia Britannica provides a very broad definition of post-modernism, which shows different perspectives of this philosophical and cultural movement. According to the Encyclopaedia Britannica post-modernism is

“a late 20th-century movement characterized by broad scepticism, subjectivism, or relativism; a general suspicion of reason; and an acute sensitivity to the role of ideology in asserting and maintaining political and economic power.” (Duigan, n.d.)

By contrast, the definition from the Stanford Encyclopaedia of Philosophy focuses on post-modernist practices and claims that post-modernism

“can be described as a set of critical, strategic and rhetorical practices employing concepts such as difference, repetition,[...] to destabilize other concepts such as presence, identity, historical progress, epistemic certainty, and the univocity of meaning “ (Aylesworth, 2015, n.p.)

Both definitions are useful for this thesis: while the first definition emphasises post-modernism’s critique of the rational human being and the importance it places on power relations, the second definition foregrounds the inherent role of philosophical concepts for producing different thinking and living.

Post-humanism, understood as a pluralistic movement with different and often contrasting perspectives (Wolfe, 2010), draws on ideas expressed in both definitions in its critique of anthropocentrism:

“If; for a very long time, man has been the measure of all things (*anthropocentrism*), posthumanism is looking to account for things [...] in a non-anthropocentric way. This “new” way of thinking, which is only new in the sense that it puts humans back into the thick ontological and political relations in which they have always already been networked, is going to necessitate wide-ranging and radical changes in how we

conceive of educational practices and institutions.” (Snaza, Appelbaum, Bayne, Carlson, Morris, Rotas, Sandlin, Wallin & Weaver, 2014, p. 43).

In their article *Towards Posthuman Education* Snaza et al. (2014) posited the entanglement of human life and critically questioned the function(s) of categories like ‘human’, ‘animal’ or ‘machine’ in the production of human practices and subjectivities. In their critique the authors built on work by Haraway (2000), who had expressed her criticism of the dominance of humans over nature in her article *Cyborg Manifesto*. However, dualisms and linear structures are part of our lives, and they need to be acknowledged as such. Deleuze and Guattari (1987) claimed that linear structures restrict divergent thinking, but they considered their functionalities in the concept of *rhizome*, which is introduced later in this chapter.

Post-modernist and post-structuralist thinking underpinned critical discussions in qualitative research in the 1980s and led to the ‘Crisis of Representation’, as it was termed by Denzin and Lincoln (2008). Essentially, the crisis of representation “confronts the inescapable problem of representation, but does so within a framework that makes the direct link between experience and text problematic” (Denzin & Lincoln, 2008, p. 26). Representation is a key principle of qualitative research, as qualitative research is concerned with capturing and interpreting lived experience. However, ‘lived experience’ is channelled through the researcher’s understanding and embedded in processes of construction and re-construction within the text production associated with the research. Denzin and Lincoln further maintained that the crisis of representation is part of a triple crisis that qualitative researchers face in the wake of the post-modernist and post-structuralist thinking. They termed the other two elements of this triple crisis ‘legitimation’ and ‘praxis’. The crisis of legitimation is concerned with rethinking key elements of all research, such as validity, generalisation and reliability in pursuit of

answers to the question “How are qualitative studies to be evaluated in the contemporary, poststructural moment?” (p. 26). Finally, the crisis of research praxis makes the textual form(at) in which research appears problematic and seeks to rethink research, and consequently forms of knowledge, beyond textual meaning and representation.

The criticism of representational thinking and the notions expressed in the triple crisis are probably most radically elaborated in a body of research related to Non-Representational Theory (Thrift, 2008; Vannini, 2015). Non-Representational Theory “stands as a synthesizing effort to amalgamate diverse but interrelated theoretical perspectives” (Vannini, 2015, p. 3), and draws on ideas from different philosophers, “most commonly of all Gilles Deleuze and Felix Guattari.” (p. 3). Deleuzo-Guattarian thinking has certainly influenced the creation of the seven principles of Non-Representational Theory, as advocated by Thrift (2008). The first and the third principle in particular contain ideas that also underpin my research. The first principle states that life can be regarded as movement. Non-Representational Theory “takes the leitmotif of movement and works with it as a means to go beyond constructivism.” (p. 5). Movement, or flow, is a constituting element of the Deleuzo-Guattarian concepts of *rhizome* and *assemblage*, which, together with the concept of *becoming*, are central to the research framework of my thesis. The third principle places importance on practice, action and performance:

“Relying primarily on performative approaches to relational action and on postphenomenological and Deleuzian philosophy, non-representational work puts a premium on the corporeal rituals and entanglements embedded in embodied action rather than talk or cognitive attitudes “ (Vannini, 2015, p. 4).



Practice is integral to Deleuzo-Guattarian thinking, as the following section will show. Before I elaborate on the concepts of *rhizome*, *assemblage* and *becoming*, it is necessary to provide some background on Deleuzian philosophy to facilitate understanding of these concepts and their relevance for and within this research.

### 3.3 On Deleuzian philosophy

For Deleuze, philosophy is not about seeking truth or about creating abstract theories; instead, philosophy is concerned with creating concepts (Deleuze & Guattari, 1994). May (2003) posited that Deleuze's philosophy "is a practice whose point is not that of getting the right take on things but of making a contribution to our living" (May, 2003, p. 140). So, it is central to Deleuze's understanding of philosophy that it is grounded in 'doing', i.e. in practice.

Understanding philosophy as process-oriented and entangled in the on-going activities of (human) life has two consequences from a Deleuzian perspective. Firstly, engaging with Deleuzian philosophy entails developing a critical stance towards fixed structures and dominant discourses in society. Secondly, 'doing philosophy' contains an explicit mandate to uncover fixed structures, resist and work against them and - ultimately - seek to change and transform them. In this way a political element is deeply ingrained in Deleuzian and Deleuzo-Guattarian philosophy and in the concepts of *rhizome*, *assemblage* and *becoming*.

A Deleuzian post-structuralism seeks to transform structuralism by breaking away from a repetition of existing structures (representation) and from structuralism's understanding of difference through concepts of identity. However, Williams (2014) showed that Deleuze's philosophy does not try to achieve this by offering a new model which sits in complete opposition to structuralism. Instead, Deleuze's radical ideas for

transforming structuralism start from *within* structuralism, and are based on a non-binary, relational understanding of structure:

“What matters is not that A is related to B, but that the structure A–B is different from the structure A–B–C. So structure is not about symbols as something that can be perceived (a road sign) and that has a meaning (“Stop here”). It is about the symbolic as a process where the symbol implies a rearrangement of relations in structures (the new road sign as implying a changing set of symbolic relations with other signs and much wider).” (Williams, 2014, p. 58)

An example from this research would be the Twitter hashtag (#), which is a symbol that rearranges the tweet relations by making a tweet part of a hashtag network. Structural workings and their productions will be explained and explored in more detail in Chapter 5.

In line with other post-structuralists, Deleuze defied the concept of identity as understood through categories that are used to prove sameness (B equals A, because A and B have identical pre-defined characteristics), variation of sameness (B is a copy or a repetition of A) and difference (B does not equal A, because B has different characteristics from A). Instead of using the same structures to show possible limitations and flaws of this conceptual understanding of identity (which would be a form of repetition), Deleuze created an ontology that focuses entirely on relations between structures, seen and unseen:

“Structural relations are complete in the sense that a relation is connected to all others. Therefore, when a given structure emerges it is only by focusing on some relations rather than others. But the “discarded” or

“detached” relations are still there as a background for the selected ones.”

(Williams, 2014, p. 54)

In summary, putting Deleuze to work *within* one’s own research effectively means experimenting with concepts in order to produce new thinking-doing, and these activities are inseparably connected to life itself. In this way ‘applying’ Deleuzo-Guattarian concepts in one’s research is essentially about producing new thinking-doing about the way(s) we live in this world.

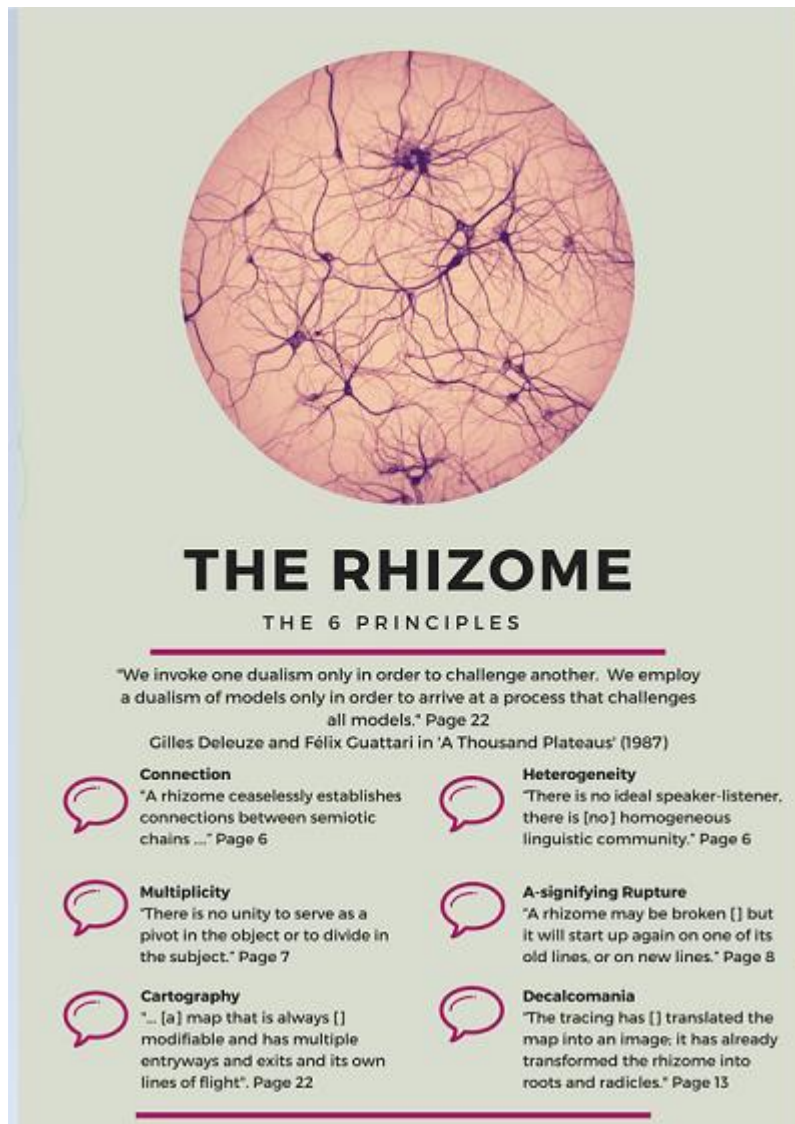
### **3.4 Deleuzo-Guattarian concepts: rhizome, assemblage and becoming**

This section will introduce the Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming*, which provide the foundation for the Deleuzo-Guattarian research framework explained in Chapter 4.

#### **3.4.1 Rhizome**

In their seminal work *A Thousand Plateaus* Deleuze and Guattari (1987) describe their thinking in terms of trees and rhizomes. The authors derived their concept of *rhizome* from botany, arguing that grass roots grow continuously and horizontally, without a formal beginning or end in a dynamic, non-hierarchical way. Mackness, Bell and Funes (2016) created a visualisation, which shows the horizontal and vertical movement of lines and their connection points (nodes). The visual also provides an overview of the conceptual principles of *rhizome*.

**Figure 3.1** The Rhizome (Mackness, Bell & Funes, 2016, p. 82)



From an etymological point of view “‘rhizo’ means combining form” (Colman 2010, p. 232). This is interesting, as it links to the notion of connectivity and heterogeneity as the first and second principle of the *rhizome*, as shown in the lower left part of Figure 3.4.: “any point of a rhizome can be connected to any other, and must be” (Deleuze & Guattari, 1987, p. 7). The third principle, the principle of multiplicity, is opposed to the common-sense understanding of identity as having a stable core: “A multiplicity has neither subject nor object, only determinations, magnitudes and dimensions” (p, 8).

Deleuze and Guattari called the fourth principle of the *rhizome* the principle of a-signifying rupture: “A rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines.” (p. 9). The concept of *rhizome* is opposed to a common-sense understanding of dualisms, such as good/bad or old/new. Instead, the *rhizome* is fluid in nature, containing ‘lines of segmentarity’, which restrict movement and ‘lines of flight’, which enable movement away from territorialisation, stratification, signification (representation). However, there is no guarantee that fleeing movement(s) away from the ‘lines of segmentarity’ will be successful:

“You may make a rupture, draw a line of flight, yet there is still a danger that you will reencounter organizations that restratify everything, formations that restore power to a signifier, attributions that reconstitute a subject...” (Deleuze & Guattari, 1987, p. 9).

In the concept of *rhizome* opposing movements or lines are constantly entangled with one another in complex and dynamic processes of territorialisation *and* de-territorialisation *and* re-territorialisation, *and* de-territorialisation, ...*and*... From this line of thought it becomes clear that a political element is central to Deleuzo-Guattarian thinking and inseparably linked to the concept of *rhizome*.

The fifth and sixth principles of the concept of *rhizome*, cartography and decalcomania, possibly contain the strongest criticism of dualistic thinking that understands identity in terms of a stable core. For Deleuze and Guattari (1987) the concept of rhizome is opposed to the traditional, hierarchical arborescent model, which sees knowledge construction and learning occurring according to pre-determined structures. The principle of decalcomania is linked to the idea of tracings: “[All] of the tree logic is the logic of tracing and reproduction” (p. 12), where tracings are based on

“an overcoded structure or supporting axis, something that comes ready-made” (p. 12.). The *rhizome*, by contrast, “is a stranger to any idea of genetic axis or deep structure” (p. 12); it is a map that is “open and connectable in all of its dimensions; it is detachable, reversible, susceptible to constant modification” (p.12).

The principles of the *rhizome* could be conceived of as signposts that facilitate reading the map that constitutes the concept of *rhizome*. They are not principles in a conventional way, i.e. in a Deleuzo-Guattarian world it does not make sense to use the principles to determine whether something is or is not a *rhizome*. So while it does make sense to trace the rhizomatic movement of tweets on...*and* with...*and* through Twitter to see how professional development works and what it produces, a tweet cannot be a *rhizome*, as this would defy Deleuzo-Guattarian thinking about identity as outlined above.

In Chapter 2 the metaphors *learning as acquisition*, *learning as participation* and *learning as becoming* were used to describe ontological differences. However, for Deleuze and Guattari (1987) metaphors and categories belong to arborescent thinking. Metaphors and categories are seen to restrict divergent thinking and the creation of new concepts, which is at the heart of Deleuzo-Guattarian philosophy. In order to encourage engagement with their concepts, Deleuze and Guattari chose a very unorthodox way: they described their philosophical concepts through situations that defy any categorisations or patterns and instead encourage multiple readings, which do not follow rules of common sense. The concept of *rhizome*, for instance, appears in the context of rats, burrows or puppet strings in *A Thousand Plateaus*.

However, it is important to note that arborescent and rhizomatic thinking, though in opposition to each other, are not mutually exclusive. Drummond (2005) pointed out

that the opposites between linear, rigid arborescent and non-linear, fluid, rhizomatic thinking are not always clear-cut. Deleuze and Guattari (1987) emphasised that linear structures are part of the *rhizome*, but they never exist for long:

“Every rhizome contains lines of segmentarity according to which it is stratified, territorialized, organized, signified, attributed, etc., as well as lines of deterritorialization down which it constantly flees.” (p. 9)

The lines of segmentarity refer to fixed, linear structures, which restrict movements, flows, thinking, etc. However, at the same time there are always lines of flight within the *rhizome* that seek to escape these restrictions and to open up the territory (again). Difference is created through and within these forces, but its existence is always temporal, changing, and never absolute.

### **3.4.2 Assemblage**

From a Deleuzo-Guattarian perspective everything and everyone is a product of multiplicities of human and non-human elements in assemblages, which constantly change and evolve into something else: “The territorial assemblage is inseparable from lines or coefficients of deterritorialization, passages, and relays toward other assemblages” (Deleuze & Guattari, 1987, p. 333).

For Wise (2011), assemblage “is a concept dealing with the play of contingency and structure, organisation and change” (p. 91). Livesey (2010) described assemblages as “complex constellations of objects, bodies, expressions, qualities, and territories that come together for varying periods of time to ideally create new ways of functioning.” (p. 18). While Wise’s (2011) definition emphasises the fluidity of assemblages, Livesey’s (2010) understanding captures the capability of assemblages to produce *difference*. Crucial to Deleuze and Guattari is that these “new ways of functioning”

pertain to both humans and non-humans, which marks a notable departure from an egocentric perspective that regards changes in the world as a result of human thinking-doing. The concept of *assemblage* is connected to the concept of *rhizome*: “through the rhizome, points form assemblages [...] in turn, such assemblages and typologies change, divide, and multiply” (Colman, 2010, p. 235). In contrast to phenomenology, which ascribes agentic power to humans, assemblages are dynamic and constantly changing constellations with agentic power. Assemblages occupy territories, which themselves are fluent and happen as a result of constant re-configurations within assemblages and through connections with other assemblages. In this worldview nothing is ever static for a long time, and no truth is certain.

Livesey (2010) contended that assemblages can be diagrammed or mapped: “Effectively, the diagram is the code or arrangement by which an assemblage operates, it is a map of the function of an assemblage; assemblages produce affects and effects.” (p. 18). For Deleuze and Guattari (1987) affects are not emotions or perceptions: “Affects are becomings.” (p. 256).

Recently, the interest in the concept of *assemblage* in educational studies has risen (Buchanan, 2015). While Buchanan (2015) contended that this may be due to perceived connections between the concept of *assemblage* and concepts of power and governmentality developed by Foucault, there may also be other reasons. Another reason could be that the concept of *assemblage* has been deployed in research that draws on Deleuzo-Guattarian thinking, such as Actor-Network-Theory (ANT) (Müller & Schurr, 2016). Unlike its name suggests, ANT is not a theory but a “disparate family of material-semiotic tools, sensibilities, and methods of analysis” (Law, 2009, p. 141).



Buchanan (2015) criticised the way that some appropriations of the concept of *assemblage* “cloud our understanding of Deleuze and Guattari” (p. 383). In particular, the author saw a problem in ANT’s focus on “the complex and undecidable” (p. 382) and in DeLanda’s (2006) focus on “the problem of emergence” (p. 382). However, Müller and Schurr (2016) posited that there are “cross-fertilisations” between the Deleuzo-Guattarian concept of *assemblage* and how this concept is understood in ANT. In summary, there is no unified understanding of the concept of *assemblage*; its value and the value of the other concepts lies in putting Deleuzo-Guattarian concepts to work in one’s own research.

In this research tweets are regarded as assemblages of human and non-human elements. Put differently, tweets are situated and temporal human and non-human comings-together that continuously connect to other assemblages on and beyond Twitter and which have the capability to produce becomings that pertain to humans and non-humans. These becomings may never actualise (see next section), but the potential for actualisation exists nevertheless.

In a similar way, I contend that hashtags can be regarded as assemblages of human and non-human elements and as multiplicities. Hashtags are elements through which tweet assemblages travel in rhizomatic fashion on and through Twitter. For example, the hashtag #Deleuze can be found in tweets which contain quotes from texts by the philosopher Gilles Deleuze. The hashtag #Deleuze is part of a tweet assemblage, *and* it connects to a network of tweets and retweets with the same hashtag. It might be combined with other hashtags, such as #AThousandPlateaus, #readthisbook, or with hashtags that express individual feelings about Deleuze. A tweet with the hashtag #Deleuze can also be liked and retweeted by a non-human user, such as the bot with the Twitter handle @DifferenceRepetition. This algorithmic system is trained to detect and

retweet tweets pertaining to texts by Gilles Deleuze, thereby increasing their distribution on Twitter and contributing to the growth of the Twitter network #Deleuze.

Hashtag combinations can increase connectivity and might even increase the speed of the tweet movement. This is the case if a hashtag is used by many Twitter users over a short period of time, such as during a conference or during a one-hour Twitter chat. An example would be the hashtag #ELTchat (English Language Teaching chat) in a tweet, which connects to a network of language teachers *and* to a one-hour Twitter chat that is conducted on a regular basis (see next chapter). So whenever tweets and hashtags are mentioned in this thesis, it is important to keep in mind that they do not constitute solid entities but are fluid, temporarily existing constructs that continuously change.

The concept of *assemblage* is linked to the concept of *becoming*, as *becoming* is produced through and within assemblages.

### 3.4.3 Becoming

A Deleuzo-Guattarian understanding of *becoming* is very different from an understanding of becoming that is grounded in biological stages. As outlined in the previous chapter, this notion underpins the concept of *learning as becoming* (Boud & Hager, 2012; Hager & Hodkinson, 2009). The Deleuzo-Guattarian concept of *becoming* is also in opposition to identity concepts “familiar in second language and literacies research” (Waterhouse, 2012, p. 133), which rely on representation, human autonomy and a “sense of continuous identity” (Menard-Warwick, 2005, p. 270).

Deleuzo-Guattarian *becoming* does not presuppose identity and regards humans as “a qualitative multiplicity” (Semetsky, 2003, p. 213), as subjectivities. This is evident from the opening chapter of *A Thousand Plateaus* (Deleuze & Guattari, 1987),

in which the authors state “Since each of us was several, there was already quite a crowd.”(p. XIV). Subjectivities are “constructed in a multidimensional field” (Semetsky, 2003, p. 213) that is life itself, through processes of individuation: “The subject becomes an effect of events in life.” (Masny, 2013, p. 341). In this view, becoming-other is not bound to and by time, as it is in the biology-based *learning as becoming* model: subjectivities do not become-other because they age or change their jobs; they become-other through affective assemblages that produce difference in (human) subjectivities. Affect in a Deleuzian sense is not an emotion but “an experiential force” (Colman, 2010, p. 12), the capacity of physical and mental bodies to affect each other and to be affected by one another. Drawing on Massumi’s famous article *The Autonomy of Affect* (Massumi, 1995), which regards the Deleuzian affect as a pre-individual force, Semetsky (2003) claimed that

“The production of subjectivity includes an encounter with pure affect as if it were an autonomous and real being. The powerful intensity of such an encounter marks the passage between the experiential states of the body and accordingly affects the body’s capacity to act.” (Semetsky, 2003, p. 213)

As multiplicity Deleuzo-Guattarian *becoming* is not a singular event: “Becoming is always double, that which one becomes becomes no less than the one that becomes” (Deleuze & Guattari, 1987, p. 305). The simultaneous happening of *becoming* that pertains to something that becomes and someone who becomes unfolds as “a labyrinthine philosophical garden of forking paths. New futures ceaselessly diverge and are interconnected in the absence of a dominant centre.” (Bankston, 2017, p. 4). Lacking a clearly defined start and finish, *becoming* is always already happening in-between, a continuous, fluid transitioning between that which was and that which is not

yet: “A line of becoming is not defined by points that it connects, or by points that compose it; on the contrary, it passes between points, it comes up through the middle” (Deleuze & Guattari, 1987, p. 293). However, the “line of becoming” is never linear and it is never singular; instead, it refers back to rhizomatic unpredictability: “Becoming-other signals the *untimely* aspect of becoming. We do not know a priori how becoming will unfold, what will be produced out of difference.” (Waterhouse, 2012, p. 133; italics in the original).

In its focus on capacity Deleuzo-Guattarian thinking foregrounds the potential of *assemblage* to produce *becoming* and not the manifestation of *becoming* in reality, its actualisation. As capacity, *becoming* is first and foremost virtual, and may or may not actualise. In other words, virtual *becoming* exists independent of its actualisation and is not bound by time or space:

“We should see the actual not as that from which change and difference take place, but as that which has been effected from potentiality. Time is not the synthesis or continuity of actual terms, as in phenomenology where consciousness constitutes time by linking the past with the present and future. Rather, time is the potential for various lines of actuality.” (Colebrook, 2010, p. 10).

The philosophical concept of *becoming* disrupts and uproots conventional western thinking, which regards becoming as an actualisation of possibility tied to an already existing actualisation. An actualisation could be a person, who decides to become a teacher, when her school marks were such that she could have studied something else. Becoming a teacher in this example is a possibility that actualised, became real, based on individual choice. By contrast, a Deleuzian *becoming-teacher* is

primarily the pre-individual idea of *becoming*-teacher, which actualises not because of individual choice but as an effect of assemblages associated to *becoming*-teacher.

Colebrook (2010, p. 10) argued that “Deleuze’s empiricism is that of the Idea, and it is the essence of the Idea to actualise itself. There is, therefore, an Idea of thinking, the potential or power to think, which is then actualised in any single thought.”

In summary, a Deleuzo-Guattarian perspective regards humans, such as FLTs, not as agentic individuals but as subjectivities that are produced through and within constantly changing assemblages. These becomings are unpredictable and they happen in-between tweet and hashtag assemblages, not as a direct effect of them.

Researchers have found working with Deleuzo-Guattarian concepts fruitful for their work in the field of education. Some examples are provided in the next section.

### **3.5 Deleuzo-Guattarian concepts in educational research**

Deleuzo-Guattarian thinking and concepts have inspired researchers in a wide range of areas in education, such as educational philosophy, research methodology, teacher education and language education.

For education at large Gregoriou (2004) has seen a potential for Deleuzo-Guattarian thinking to produce a minor philosophy of education, which “picks up ideas from social sciences without anxiety about risking its identity, and connects these ideas in new encounters” (p. 234), while Semetsky (2009) explored Deleuzian concepts to reconceptualise “education as a process of learning from and evaluating experience, inventing concepts in practice, and creating novel meanings” (p. 444). St. Pierre (2004) ‘plugged’ into Deleuzian and Deleuzo-Guattarin concepts to re-think subjectivity as “an individuation that was always starting up again in the middle of a different temporality, in new assemblages, never fully constituted, fluid, a flow meeting other flow” (p. 291).

In a similar vein Mazzei and McCoy (2010) argued in their introduction to the special issue *Thinking with Deleuze in qualitative research* for de-centering human subjectivity in qualitative research and to “think with Deleuzian concepts in a way that might produce previously unthought questions, practices, and knowledge.” (p. 504).

With regard to teacher education and inclusion Allan (2004) critiqued the “quest for indicators and outcomes within the quality assurance genre” (p. 419) and saw the *rhizome* as “an instrument of flight” (p. 424), which helps to see student teachers’ knowledge and understanding as a series of maps that “perform and create new knowledge” (p. 424). Bone and Edwards (2015) explored the concept of *rhizome* in their narrative account of a study on peer-assisted learning and e-learning in a teacher education programme focused on early childhood learning. The authors found that “learning happens [...] by being rhizomic, being prepared to be uprooted so that something new can arise” (p. 71) and saw “new shoots of learning” (p. 72) that surprised them. Unexpected instances of learning included their own critical peer-teaching discussions as a form of peer-learning which encouraged more active student participation.

In language education Masny (2013, 2016) drew on Deleuzo-Guattarian thinking to develop Multiple Literacies Theory (MLT) within her research with multilingual children. MLT is an assemblage which “releases school- based literacy from its privileged rank to engage reading in multiplicitous and heterogeneous rhizomatic connections.” (Masny, 2016, p. 1). Waterhouse (2011, 2012) put to work MLT and Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming* in her research with adult immigrant language learners, and Bangou (2012) worked with MLT and the concept of *assemblage* in his investigation of knowledge creation in a second language teacher preparation programme. In his study Bangou found that within the

programme's collective assemblages research participants transitioned and navigated through multiple becomings, including teacher-becomings, student-becomings and web-page-designer becomings. These and other works helped me develop an initial understanding of the concepts of *rhizome*, *assemblage* and *becoming*, which I then developed further within the conceptual research framework to come to a different understanding of what it is to do research (see Chapter 4).

Perhaps ironically, the concept of *rhizome* has been taken up in some parts of education not through multiple readings by different authors, but mainly based on a particular reading of this concept by one author. Cormier (2008) coined the term 'rhizomatic education' in an article titled *Rhizomatic Education: Community as Curriculum*. As the title suggests, the author linked the concept of *rhizome* to a group of people who jointly define what is being learnt:

“In the rhizomatic model of learning, curriculum is not driven by predefined inputs from experts; it is constructed and negotiated in real time by the contributions of those engaged in the learning process. This community acts as the curriculum, spontaneously shaping, constructing, and reconstructing itself and the subject of its learning in the same way that the rhizome responds to changing environmental conditions.”

(Cormier, 2008, n.p.)

From this quote it is apparent that Cormier's understanding of the concept of *rhizome* is linked to the human-centred concept of community, which sits awkwardly with Deleuzo-Guattarian thinking. Cormier later developed his thinking about the concept of *rhizome* on his blog and 'applied' his understanding in two Massive Open

Online Courses (MOOCs), which were enacted on different social media platforms, among them Twitter.

Harris (2016) criticised that Cormier's understanding of *rhizome*, "is mentioned in virtually all definitions of rhizomatic education, almost entirely positively" (p. 2). In fact, Cormier's reading of *rhizome* was adopted in The Open University's report *Innovating Pedagogy 2012* (Sharples, McAndrew, Weller, Ferguson, FitzGerald, Hirst, Mor, Gaved & Whitelock, 2012) and appears in articles that link the concept of *rhizome* to the idea of community (e.g. Bali, Crawford, Jessen, Signorelli, & Zamora, 2015) and to a form of learning, i.e. 'rhizomatic learning' (e.g. Mackness & Bell, 2015; Conole, 2016). In my own research I saw the term 'rhizomatic' in connection with Cormier's article on Twitter during the pilot study in tweets with the hashtags #rhizo14 and #rhizo15, leading me to further investigations of this term. From a Deleuzo-Guattarian point of view it could be argued that one reading of the concept of *rhizome* has led to a territorialisation of the concept of *rhizome*, thereby stifling attempts to develop other readings that could inform research and lead to different perspectives.

In summary, Deleuzo-Guattarian thinking-doing research offers possibilities for opening up the Twitter-in-education research territory in new and exciting ways. For research into teachers' Twitter-based PD working with the Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming* led to the production of research questions that acknowledge the human-non-human entanglement of Twitter-based professional practices. Research guided by questions that do not privilege humans can overcome the *received view* and the *contextual view* identified in existing research (see Chapter 2.5) and lead to *different* (in a Deleuzo-Guattarian sense) conceptualisations of (language) teachers' practices and professional development.



### 3.6 Research questions

Deleuze and Guattari (1987) invited readers of their book *A Thousand Plateaus* to think differently about the world and the phenomena therein, and to decide whether their book is of any help in this endeavour or not. I read *A Thousand Plateaus* alongside engaging with research data and with academic literature, alongside producing visualisations of my work to be used in presentations and in a book chapter (Emke, in press), alongside online exchanges with other researchers and alongside an experimentation of co-designing and co-facilitating the Twitter online course *Drei Wochen Twitter* (see Chapter 5.7).

Within these dynamic entanglements, which transcended the theory-practice dichotomy in my work and in my life, the research perspective(s) and the research questions changed radically. Shifting from a human-centred to a relational perspective led to the production of the following two research questions:

RQ1: How does freelance language teachers' professional development *on...and* with...*and* through Twitter work?

RQ2: What does freelance language teachers' professional development *on...and* with...*and* through Twitter produce?

The two research questions attempt to open up the Twitter-in-education research territory. As outlined in Chapter 2, this territory has been striated by research approaches that are informed by the *received view* and the *contextual view* of human-technology relations, which operate within discourses of self-directed learning and community-led learning. The first research question guides the investigation of the complex workings of tweet assemblages, their rhizomatic movement(s) and their connections with other assemblages in the context of FLT's PD. The second research

question focuses on the becomings that these assemblages were producing, and on their actualisations within FLT's PD.

In the next chapter I will explain the drastic change in my thinking from a research approach that was informed by phenomenology to a research approach that was inspired by Deleuzo-Guattarian concepts. I will argue that research methods which are useful in phenomenological research can be made to work within a Deleuzo-Guattarian research framework, and I will show how this has been achieved in this study.

## CHAPTER FOUR: A CHANGE OF THE RESEARCH APPROACH

This chapter explains how I came to develop a Deleuzo-Guattarian inspired research approach for the main study, which was profoundly different from the socio-constructivist and socio-cultural approach I used in the pilot study (reported in section 4.2). Research approaches can be understood as the collective of plans and procedures “that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation.” (Creswell, 2014, p. 3). The ontological change affected all steps of the research approach and also had linguistic implications. The last part of this chapter will describe the new approach and outline ethical challenges and how these challenges were met.

### 4.1 Working with concept(s)...*and*...working with method(s)

Deleuze & Guattari (1987) left no roadmap or signposts that would help researchers apply their concepts to and within empirical research. Instead, they invited their readers to engage with philosophical concepts, which are as difficult to read as they are difficult to fathom. Engaging with Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming* in one’s research thus entails far more than the question how such concepts could be ‘applied’. Primarily, engaging means re-thinking the research framework, and with it re-thinking method(s).

In the wake of the postmodern turn research methods have come under scrutiny. In his seminal work *After method* Law (2004) criticised the “hegemonic and dominyatory pretensions of certain versions or *accounts* of method” (p. 4), which determine how researchers are allowed to see and what they should do, and argued that the rules and practices of methods “not only describe but also help to *produce* the reality that they understand.” (p. 5; italics in the original). Regarding methods as performative elements

in the production of different (research) realities leads to a different understanding of what it means to do research. Methods can no longer be regarded as neutral instruments or a set of techniques that – if applied correctly – help the researcher “discover specific truths about which all reasonable people can at least temporarily agree” (Law, 2004, p. 9). Instead, method is inseparably entangled with the complexities of life and research work: “Method goes with work, and ways of working, and ways of being.”(p. 10.).

Although Law’s claim of multiple realities has been contested (Buchanan, 2015), his view of method as entangled in research practices is supported by other researchers. Sellers (2015), for instance, described the research process as “ongoing intermingling of data, methodology and analysis, enmeshed with theorizing the literature and practising the theory” (p. 6). Haraway (1998) extended her criticism of ‘objective’ methods to the position of the researcher. In particular, she criticised research perspectives that regard the researcher as an all-knowing and all-seeing individual and argued that researchers need to openly declare their partiality in their work.

Some researchers have argued that Deleuzo-Guattarian thinking-doing research requires a complete re-orientation in research, and in particular in qualitative research that is informed by a phenomenological ontology. Masny (2013) criticised research methods which rely on representation as a vehicle that “limits experience to the world as we know it, not as a world that could be” (p. 342). Other researchers have claimed that qualitative researchers need “to give up the pretence of signifying and making meaning in the old ways” (St. Pierre, 2004, p. 283) and should seek to invent entirely new ways for data enquiry (Mazzei & McCoy, 2009; Sellers, 2015).

However, the question arises whether this new understanding of method necessarily entails a complete abandonment of methods that are informed by a different ontology, such as phenomenology. Williams (2014) has asserted that phenomenological methods are not rejected per se by post-structuralism. Instead, “[T]hey are rejected as the only way to truth or essence, but they are important for understanding the hold that intentionality and subjectivity have on us” (p. 8). The author emphasised that

“[I]n studying and working with phenomenology, poststructuralists are able to connect to this powerful source of an apparently secure core. They are able to work against that power, not with the aim of having done with it, but in order to bring wider interactions to our attention.” (Williams, 2014, p. 9).

I followed Williams’ advice in my research and explored in the main study how methods I had used in the pilot study could be made to work within a Deleuzo-Guattarian inspired framework. Before I explain the research framework of the main study, however, it is necessary to take a look back at the pilot study.

#### **4.2 Looking back: The pilot study**

This doctoral investigation did not commence as Deleuzo-Guattarian informed research. Instead, this study was originally informed by phenomenological thinking. According to Creswell (2014) phenomenological research seeks to describe the

“lived experiences of individuals about a phenomenon as described by participants. This description culminates in the essence of the experiences for several individuals who have all experienced the phenomenon.” (p. 14).

Informed by research on teachers' PD on Twitter (Carpenter & Krutka, 2014, 2015) and language teachers' PD on Twitter (Lomicka & Lord, 2014; Wesely, 2013), and based on my own experience as a researcher in projects with the European Centre for Modern Languages (ECML) (Beaven, Emke, Ernest., Germain-Rutherford, Hampel, Hopkins, Stanojévic. & Stickler (2010); Stickler & Emke, 2015), the research questions of the pilot study centred on FLT's perceptions of and experiences with Twitter for PD.

The framework, which I developed to answer the research questions, followed a 'conventional' understanding of thinking-doing research. This means that I organised and planned my research in a very structured manner, as advised in the literature (Burgess, Sieminski & Arthur, 2006; Creswell, 2014). While this commonly accepted way of doing research has many merits, not least that it provides the researcher with an overall structure that he/she can rely and build on, it also entails a certain rigidity and a theory-practice dualism, i.e. doing-research is preceded by a literature study of possible research methods, of which one or more are chosen according to pre-determined criteria. The criteria for determining the research methods used in the pilot study were based on their perceived effectiveness in providing answers to the research questions and on pragmatic considerations pertaining to the needs to find research participants and to conduct research in a timely fashion that aligned with the university's professional doctorate programme.

At the beginning of this investigation, socio-constructivism and socio-cultural theory provided the underpinnings of the theoretical framework that guided the pilot study. Socio-constructivism maintains that learning is mediated through social interactions and artefacts (Vygotsky, 1978). This perspective places people and how they construct meaning and understanding of the world around them in the centre of research. Following this view, I regarded Twitter as a space in which collaborative

learning takes place through socio-constructivist processes, allowing language teachers to advance according to their individual ‘Zone of Proximal Development’. (Vygotsky, 1978). This perspective is consistent with a view of *learning as participation* and has indeed informed previous research on Twitter for PD, as shown in the literature review. Socio-cultural theory (Johnson, 2006) also underpinned the design of the pilot study. This paradigm regards human learning as

“the progressive movement from external, socially mediated activity to internal, mediational control by individual learners, which results in the transformation of both the self and the activity.” (Johnson, 2006, p. 238)

An understanding of learning as a ‘progressive movement’ seemed to align well with my own observations of language teachers’ tweets prior to the pilot study: some language teachers simply tweeted to the public, while other language teachers showed more intentional tweeting by directing their tweets to other Twitter users or to a whole Twitter network through the use of the hashtag sign (e.g. #mfltwitterati, #ELTchat). Through these observations I also noticed that some language teachers mentioned the use of ‘following’ and ‘being followed’ for information acquisition and resource sharing in their tweets, which was confirmed by the literature (see Chapter 2.6.4). From my observations and the initial literature review I inferred that connections to other educators and to online communities play a particular role for FLTs’ Twitter-based PD on and for their Twitter practices. In order to gain more insight into these practices and to find research participants for the main study, I considered using an online questionnaire. While questionnaires can be a low-threshold instrument for collecting data, their value is defined – and limited – by its balance of scope and depth of questions. Narrative frame questionnaires (Barkhuizen & Wette, 2008; Barkhuizen, 2014) offer an attractive way to balance the ease of data collection with an opportunity

to get data from participants in their own words. Section 4.2.1 will provide detailed information on the online narrative frame questionnaire which was used in the pilot study and later adapted for the main study.

Identifying a Twitter network of FLTs, where the questionnaire could be disseminated and which would be suitable for community-based learning proved challenging. While I noticed the existence of Twitter language teacher networks, which regarded themselves as a community, e.g. #ELTchat, #mfltwitterati or #langchat, I often did not know whether the network actors matched my definition of FLTs, since this information was often missing in their Twitter profile.

Therefore I adopted a pragmatic approach of tweet observation of self-proclaimed FLTs, combined with a literature review targeted at language teachers' use of Twitter. I noted down my observations in an electronic notebook, which I kept and added to throughout the entire thesis. Wesely's (2013) investigation of the Twitter language teachers' community of practice (CoP) #langchat did not provide any information as to whether any FTLs were members of this community. While Rosell-Aguilar's (2015) study of the #mfltwitterati CoP also lacked this information, his findings indicated that this diverse online community might contain freelance language teachers. Almost 10% of the 114 research participants in Rosell-Aguilar's survey stated that they worked independently, i.e. not for a school, a university or in further education, making it likely that these language teachers worked freelance, which would fit the profile of the target group as described in Chapter 2. Therefore #mfltwitterati was singled out for further analysis.

However, I did not want to rely solely on participants' self-disclosure given in the questionnaire to gain insight into their perceptions of Twitter for PD and into their



Twitter practices. Instead, extending the data collection to include tweets from the Twitter network #mfltwitterati promised to provide interesting information about the network structures that underpin language teachers' tweet exchanges in a CoP. Such information can be analysed with the help of Social Network Analysis (SNA). Baker-Doyle (2015) attributed the rise in social network research in education to a changed perspective on teacher learning and PD, which "has increasingly centred on mentoring, collaboration, and professional community building" ( p. 72) since the 1990s. Baker-Doyle's claim reflects the *learning as participation* view outlined in Chapter 2.3.2 and aligns with Fox & Bird's (2017a) assertion that teacher learning is understood to be social. Gao, Luo and Zhang (2012) investigated the use of microblogging in education as reported in academic research between 2008 and 2011 and suggested that SNA "may help reveal how communication and learning occur via microblogging" (p. 793). Examples of recent applications of SNA in studies about teacher learning and PD will be presented in Chapter 4.2.2.

Combining narrative frames with SNA led to a mixed-methods approach in the pilot study to gain "a more complete understanding of a research problem than either approach alone" (Creswell, 2014, p. 4). Adopting a mixed-methods research approach is not new but has become popular in recent years. Brannen (2009) described five trends that have promoted the use of mixed methods in academic research. Among these trends the author listed a shift away from theoretically-driven towards goal-oriented research and a marketisation of research due to fierce competition for reduced public funds. Both trends favour researchers that bring knowledge of and experience in both quantitative and qualitative research to the investigation, because these researchers can instantly draw from different research traditions and a variety of different research methods without further training.

Developing a research design based on a combination of methods confronts (novice) researchers with problems of choice. These problems arise from a persistent dualism of quantitative versus qualitative research in academia, the variety of methods available in both research directions and questions pertaining to the combination of methods. Typologies of research designs can help address these issues. However, by investigating typologies from different authors, Niglas (2009) found that

“there is a lack of terminological and even conceptual clarity and coherence. We can find many different labels for the same ideas, and at the same time authors use identical terms for different meanings.” (p. 36.)

Instead of tailoring a research design to the specifications of a particular typology, Niglas advocated that a researcher’s choice and mix of quantitative and qualitative methods should be mainly informed by whether particular methods contribute towards achieving the research aims and towards answering the research questions. By deconstructing the overall research design into methodological aspects the researcher could assess the usefulness of different research tools, such as surveys or interviews, for the study and develop an understanding of the way(s) these tools could be employed in different phases of the research process.

Following Niglas’ advice and my own criteria as outlined above, I created a research design for the pilot study, which consisted of two sequential phases. Table 4.1 provides an overview of the research design.

**Table 4.1** Research design of the pilot study

<b>General information</b>	<b>Phase 1</b>	<b>Phase 2</b>
Overall data collection	10-12 Nov 2015 (3 days)	16 Nov-6 Dec 2015 (21 days)
Sample size / responses	475 tweets from 241 Twitter users	8 responses (+ 2 responses from test users)
Method of data collection	Collecting consecutive tweets that included the hashtag #mfltwitterati on Twitter with the software NodeXL	Sending 63 tweets to #mfltwitterati (average of 3 tweets per day) with a link to the online narrative frame questionnaire
Method of data analysis	Social Network Analysis	Grounded Theory Approach

Phase one pertained to the collection and subsequent analysis of data from the CoP #mfltwitterati. The data collection with the search word #mfltwitterati was executed by accessing Twitter's full Application Programming Interface (API), using the open access software NodeXL. Overall, there were three open access software options, which I had found through my research on the Internet: NodeXL, Gephi (<https://gephi.org/>) and TAGSExplorer (<https://tags.hawksey.info/tagsexplorer/>). NodeXL was chosen over the software Gephi for novice user friendliness and over TAGSExplorer for reliability, as this tool was still in testing at the time of the pilot study. The data collection period was originally planned to take place from 16-18 November 2015. However, due to the terrorist attacks in Paris on 13 November 2015, data collection was pre-dated to 10-12 November, as this attack probably would have had an impact on the topics of the exchanges and the number of retweets in this CoP. Since I had previously received the approval of the Ethics Committee, this change was

possible. Further considerations of ethical issues encountered in this research can be found in section 4.6.

The following three sections will describe the experience I gained from using online narrative frame questionnaires, SNA and Grounded Theory (GT) and the results this mixed-methods approach yielded for the main study (see section 4.3).

#### **4.2.1 Online Narrative Frame Questionnaires**

Narrative research (Clandinin & Connelly, 2000; Bold, 2012) allows the researcher to gain insight into research participants' perceptions of a social phenomenon. Narratives "are texts which tell stories of lived experience" (Barkhuizen & Wette, 2008, p. 374). In the field of language teaching and learning Barkhuizen, Benson and Chik (2013) maintained that "following a resurgence of interest in narrative in the social sciences [...] narrative inquiry began to take its place in the panoply of approaches to research that are now available to language teaching and learning researchers" (p. xi) and recommended "a situated and experimental approach to narrative research" (p. xii).

A narrative frame questionnaire (Barkhuizen & Wette, 2008; Barkhuizen, 2014) gives research participants a "scaffolded opportunity for narrative reflection" (Barkhuizen & Wette, 2008, p. 382) by providing sentence beginnings instead of open or closed questions, as is the case with conventional questionnaires. Research participants finish these sentences and decide how much or how little they want to write, limited by the amount of space available in the (online) questionnaire. This structured approach helps respondents overcome 'writer's block', i.e. the difficulty to start writing about a particular topic, and aids the process of data analysis: "With

narrative frames, the data are well on the way to being categorized because of the narratively sequenced arrangement of the frames.“ (Barkhuizen & Wette, 2008, p. 381).

The process of data collection started with setting up the online narrative frame questionnaire, for which I used the password-secured, free online-tool eSurvey Creator (<https://www.esurveycreator.com/>) (see section 4.5) and tested the questionnaire. Next I contacted two FLT's, whom I had found on Twitter through my observations and asked them to test the narrative frame. The feedback I received led to three slight but important changes. One of these changes concerned the term 'part-time language teachers', which was originally used to describe the target group. This term confused one tester, who argued that FLT's, who see themselves as full-time working language teaching professionals, might find the term 'part-time language teacher' offensive. The second point, made by the same tester, referred to the term 'informal professional development'. Here the tester was not sure whether workshops could be included under this section or not. A third comment, made by the second tester, referred to a minor technical detail, which could be changed easily. In view of the feedback received, I substituted the term 'part-time' with 'self-employed / freelance' and specified in the Letter to the Participants that some self-employed / freelance language teachers work part-time, others full-time. I also added an explanation regarding the meaning of informal PD in the context of this research to avoid future confusion. After implementing these changes, I launched the questionnaire on Twitter by sending three slightly different tweets to the CoP #mfltwitterati, which contained a link to the questionnaire. Appendix 2 shows the version of the questionnaire which was used for the main study. Apart from the wording in the descriptive part (see Appendix 2, Page 1), which was adapted to explain more clearly how the collected data would be stored

and by when participants could withdraw their consent, this version is identical with the pilot study version.

#### **4.2.2 Social Network Analysis**

Social Network Analysis (SNA) has been used to investigate teachers' practitioner-based social capital in an informal advice community (Baker-Doyle & Yoon, 2011) and to analyse the structure and the interactions of Twitter chats (Gao & Li, 2016; Rehm & Notten, 2016).

Baker-Doyle and Yoon's (2011) mixed-methods study found SNA useful for revealing the structure of informal teacher networks and the strategies teachers use for accessing and sharing information. From their study the authors concluded that teachers' relations within networks need to be balanced, and that networks "need to make effective use of the 'experts' and 'bridge builders' in the group." (p. 89). Similar to Baker-Doyle and Yoon's (2011) study, Rehm and Notten (2016) drew on theories of social capital to investigate the Twitter hashtag network #EdchatDE, a network which is predominantly used by German school teachers. In the context of networked learning social capital can be understood as "a way of thinking of the benefits accrued from relationship building" (Fox & Wilson, 2015, p. 94). In their longitudinal study Rehm and Notten (2016) found that "participating in hashtag conversation on Twitter does indeed contribute to individual teachers' formation of structural capital" (p. 220). However, the study also indicated a positionality of social capital gains, i.e. teachers with a central position within the complete network or within sub-groups possess more opportunity to accrue social capital than teachers who are at the periphery.

Gao and Li (2016) analysed teacher interactions in a one-hour synchronous Twitter chat of the #Edchat Twitter network. In their SNA approach Gao and Li used

the software NodeXL for analysing the network structure and relied on Grounded Theory (GT) for analysing textual data from the tweets. Employing SNA the authors found different types and levels of interactions among participants and a range of topics that were discussed in relation to the chat topic. From their investigation the authors concluded that “such online chat events could be an effective activity for participants to brainstorm ideas, gain various perspectives, share resources and build social connections” (Gao & Li, 2016, p. 12).

In my pilot study I built on Gao and Li’s experiences and applied NodeXL to an analysis of the Twitter hashtag network #mfltwitterati. As described above, I collected tweets and retweets from the Twitter language teacher network #mfltwitterati to learn about the structures that underpin language teachers’ tweeting activities. To that end I collected and analysed 451 tweets and retweets from 241 network actors (see Table 4.1). The software NodeXL was also used for all social network analyses and network visualisations during the main study (see Chapter 5). However, for the main study I used the paid-for version, NodeXL Pro, which offers more functionalities than the free version, such as advanced network metrics.

For Marin and Wellman (2014) a social network is “a set of socially relevant nodes connected by one or more relations. Nodes, or network members, are the units that are connected by the relations whose patterns we study” (p. 11). Thus, Social Network Analysis (SNA) could be seen as an attempt to make sense of the structure of relations between network actors. In this thesis Twitter users are ‘nodes’ and their tweets and retweets are the relations that are investigated. Nodes are also known as ‘vertices’ and relations are frequently referred to as ‘ties’ or ‘edges’ in the literature (Wassermann & Faust, 1994). In order to avoid confusion I will refer to the nodes of a

network as ‘actors’ and to their relations with other network actors as ‘tweets and retweets’.

SNA uses measurements to investigate the structural relations between network actors and their positions in a network: “Central to social network analysis is the contention that one’s location in a social structure shapes one’s opportunities and outcomes.” (Carolan, 2014, p. 8). Network-level structural measures provide an overview of the network’s structure and the pattern of relations among the actors of a network. In this thesis I concentrated on five network-level structural measures which were supported by the software NodeXL to describe the Twitter network #mfltwitterati (pilot study) and to analyse the networks #ELTchat, #TBLTchat and #LTHEchat (main study). These measures are size, density, diameter, clustering and centralisation.

The analysis of the #mfltwitterati network showed that there were 241 actors and 475 tweets and retweets during the three-day investigation period in this directed network. This means that the tweets and retweets were directed to other network actors, who did not necessarily reciprocate, leading to asymmetrical relations. The size of a network is important, because it “influences the structure of relations, as actors only have so many resources and capacities for creating and maintaining ties with others” (Carolan, 2014, p. 101). The bigger a network, the more likely is it that the connectivity of network actors varies greatly. Within the #mfltwitterati network a significant number of actors (10.37% of all network actors) did not have any interactions with other actors of the network at all. These actors directed their tweets to #mfltwitterati by including this hashtag in their tweets, but did not mention individual Twitter users or replied to any users. Since tweets from these actors were neither retweeted nor replied to, they did not become part of the mainstream communication in this network, which effectively led to these actors becoming isolates.



Network density is closely linked to size and measures the strength of a network. It is calculated by dividing the number of actual ties by the number all possible ties there could be between actors in this network. Put differently, network density relates the number of connections that could possibly exist between all network actors to the number of connections that actually exist in the network. The highest density would be 1, which means that every network actor is connected to all other network actors. A calculation of #mfltwitterati's network density showed it to be 0.0042. A network density of 0.0042 means that there were only 4 actual tweets out of 1,000 possible tweets, which could have been in this network, indicating a low density of the overall network.

Another useful network-level property is the diameter of a network, which measures how fast resources, such as information, travel within a network:

“A network's diameter refers to the longest path between any two actors. This property is important, as networks that have the same size (equal numbers of actors) and even the same density (equal percentages of ties present) can have different diameters.” (Carolan, 2014, p.105)

#mfltwitterati's maximum distance between any two actors was 9, indicating that it took 9 tweets for the two most distant network actors in the network to reach each other. The average path length was 3.9, which means that on average it took about four tweets for information to travel from one network actor to another, assuming that every actor can connect to all other actors in the network. However, this is not always the case, as bigger networks tends to form clusters.

Clusters are groups of network actors within the overall network:

“High clustering indicates that there are numerous pockets in which some actors are connected to each other but not to others. Low clustering, on the other hand, suggests that relations are more evenly distributed across the network with very few pockets of dense connectivity among subsets of actors.” (Carolan, 2014, p. 106).

Clusters can also be called sub-groups. For #mfltwitterati 37 sub-groups could be distinguished. Looking at the sub-groups more closely, it became apparent that the five largest sub-groups comprised almost half (47.69%) of all network actors, with the remaining actors being spread across the remaining 32 sub-groups. This signifies a fragmented network with different interaction patterns in its sub-groups.

The position of network actors within the complete network and/or within a particular sub-group is linked to the flow of resources within this network. ‘Popular’ actors with many connections within a sub-group or within a complete Twitter hashtag network have more influence over the process of resource distribution than actors who have only few connections within the network. Put differently, ‘popular’ actors are more central to the flow of resources. In a directed network centralisation for the whole network can be measured by counting the number of ties, e.g. tweets, that are directed towards a particular actor (in-degree) and the number of ties that go from this actor to other actors (out-degree). A high out-degree score in a Twitter hashtag network means that a particular actor often contributes to the communications that take place in this network, whereas a high in-degree score indicates that a particular actor is frequently referred to by other network actors in their tweets and retweets. However, the position of an actor within a network is not only linked to the number of connections but also to his/her position with regard to the connections that other actors have in a network. For #mfltwitterat, one sub-group was central to the network communications within the

three days that were investigated. This group was the most active sub-group in the entire network. It showed a very dense interaction pattern within its sub-community and distinctive interactions with other sub-communities. Incidentally, this sub-group contained five actors out of the 20 most influential network actors, among them the founder of #mfltwitterati. This actor in particular acted as a bridge between different sub-groups, as indicated by his high betweenness centrality score.

Betweenness centrality “captures how actors control or mediate the relations between pairs of actors that are not directly connected” (Carolan, 2014, p. 157). Actors with a high betweenness centrality have a gatekeeper function. They can significantly increase or change the flow of resources, e.g. by tweeting and retweeting specific information in a Twitter hashtag network. Actors with a high betweenness centrality can also act as ‘bridges’ between network clusters that are not connected to each other. Conversely, gatekeepers can also hinder the flow of resources, simply by not tweeting or retweeting information that other actors have no other means of accessing within the Twitter hashtag network. Overall, actors with high betweenness centrality therefore “may have considerable influence within a network by virtue of their control over information passing between others” (Newman, 2010, p. 186). The betweenness centrality scores for #mfltwitterati revealed that the founder of #mfltwitterati acted as the main bridge in this network.

However, metrics derived from Social Network Analysis only provide a limited picture of relations between Twitter users, because they rely on measurable activities, such as tweeting or retweeting. These metrics do not ‘see’ when a Twitter user reads a tweet, although reading is the first activity that occurs when a Twitter user opens his/her timeline. Furthermore, the quantitative measures of SNA do not reveal anything about the situation in which tweeting or retweeting occurred, i.e. which other elements worked

in this situation. Haynes (2010) asserted that a network approach is useful for describing a wide range of diverse phenomena but raised criticism that “such models lack a consistent and robust ontological framework” (p. 1). From his own research Haynes concluded that networks can provide useful descriptions, whereas assemblages offer powerful explanations for social phenomena.

#### **4.2.3 Grounded Theory**

Creswell (2014) has defined Grounded Theory (GT) as “a design of inquiry from sociology in which the researcher derives a general, abstract theory of the process, action, or interaction grounded in the views of participants” (p. 14). There are different schools of GT, which emerged from Glaser and Strauss’s seminal work *The Discovery of Grounded Theory* (Glaser & Strauss, 1967), which have led to “ambiguous and contested meanings of the term ‘Grounded Theory’” (Bryant & Charmaz., 2007, p. 2). Following the variations of GT that Glaser and Strauss developed after their collaborative publication, two main directions can be distinguished: ‘classic’ or ‘traditional’ GT, as espoused by Glaser (1992), and an understanding of GT which is strongly influenced by symbolic interactionism and pragmatism (Strauss & Corbin, 1990). Strauss and Corbin’s work in particular has inspired other researchers to develop GT further, for instance to embrace constructivism (Charmaz, 2000) or post-structuralism (Clarke, 2005).

Confusion also derives from the term ‘Grounded Theory’ itself, which can relate to the method used for arriving at a theory and to the result of its application, the theory. In considering its methods perspective Charmaz (2006) described GT methods as

“systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories ‘grounded’ in the data themselves.”  
(Charmaz, 2006, p. 2)

It was exactly this combination of rigour and flexibility that attracted me when I was looking for a framework for analysing qualitative data collected with the help of online narrative frames during the pilot study. I was aware that I had pre-conceived notions about FLT’s PD, both from my own experience as an FLT and from my previous research (Sticker & Emke, 2015), and therefore wanted to work with data as closely as possible *and* with my own experience and perspective(s).

For GT, a close relationship between researcher and collected data is central to data analysis and theory building: “data form the foundation of our theory and our analysis of these data generates the concepts we construct” (Charmaz, 2006, p. 2). However, generating a theory is not a single straight forward analytical process. Instead, theory building happens through and within processes of ‘theoretical sampling’, where data collection is followed by immediate data analysis, which in turn informs further processes of data collection. This procedure continues until ‘saturation’ is reached, i.e. the researcher does not expect that further data collection will aid the process of theory formation. Data analysis includes memo writing throughout the research, which aids the process of categorising data and finding emerging themes.

The following quote from Charmaz’s (2006) book *Constructing Grounded Theory* describes the process of coding, which is the basis for theory-building:

“Grounded Theory consists of at least two phases: initial and focused coding. During initial coding we study fragments of data – words, lines, segments, and incidents – closely for their analytic import. [...] While

engaging in focused coding, we select what seem to be the most useful initial codes and test them against extensive data. Throughout the process we compare data with data and then data with codes.” (Charmaz, 2006, p. 42).

The pilot study questionnaire yielded eight responses from FLTs, and this data was subsequently exported to an Excel sheet to allow for easier manual data analysis. Although initially considered, the use of the software NVivo for data analysis was dismissed because the size of the data set was manageable. Data analysis followed the procedure described in the previous paragraph: Line-by-line open coding was applied to the collected data, i.e. all textual data was read carefully line by line and initial codes, such as ‘sharing teaching resources’ or ‘asking information’, were established inductively. Subsequently, these codes were further developed into themes using constant comparative analysis within a data set and across data sets. Memo writing assisted this reflective process and accompanied all processes of data analysis throughout the pilot study and the main study. Altogether, three cycles of analyses were completed in the pilot study, from which the following themes emerged: FLTs’ need for constant PD arising from individual and external factors, FLTs’ use of Twitter for sharing information and free resources, FLTs’ use of Twitter for reducing (professional) isolation, FLTs’ use of Twitter for enhanced practice, FLTs use of Twitter for connecting. In the next section I will describe the implications of these findings for the main study.

### **4.3 Intermezzo: Between pilot study and main study**

In my limited experience writing a doctoral thesis is an ambiguous undertaking: On the one hand, the thesis as a written account of a research project is expected to lay out clearly and truthfully the essential details of the research process and its results. On

the other hand, the research process is never a linear process, it never goes as planned, and it brings new knowledge in unexpected ways, which cannot always be explained with rational decisions. This ‘intermezzo’ section is a non-linear research story, in which I hope to make my ontological re-orientation transparent.

Music plays an important role in *A Thousand Plateaus*, and its authors used the word intermezzo to describe in-betweenness: “The fact is that the beginning always begins in-between, intermezzo.” (Deleuze & Guattari, 1987, p. 329). I cannot provide a specific date or time when I consciously moved towards a Deleuzo-Guattarian research approach. It happened in-between a multiplicity of thinking-doing research assemblages and not as a result of a single process or an unsatisfactory result from the pilot study. These multiple rhizomatic movements are denoted by the “*and...and...and...*”, a linguistic construct that Deleuze & Guattari (1987) used in their book *A Thousand Plateaus*.

*And...* the pilot study went well, the data collection tools produced complementary qualitative data (questionnaire) and quantitative data (tweets) that could be analysed in a ‘meaningful’ way by using a combination of GT and SNA. Simultaneously, I refined core elements of the literature review, such *learning as acquisition, learning as participation* and *learning as becoming* (Chapter 2.3). The ‘findings’ produced in the pilot study included the need for FLT’s to constantly develop professionally, which seemed to arise from external obligations (employers, government), constant changes (technology, language, working conditions, teaching methods), and from a need for self-development, which was perceived by some FLT’s. There also seemed to be tensions between self-directed and peer-led professional learning, grounded in FLT’s diverging PD objectives. Analysing tweets from the network #mfltwitterati showed that tweets were often sent to more than one Twitter

network, and that some tweets were disseminated widely through retweets and the use of hashtags. The network actors were positioned very differently, indicating that they performed different roles in the network and possessed different levels of access to information travelling within the network. Other findings from the pilot study hinted at a potential relationship between FLTs' tweeting practice and language teaching. Furthermore, two respondents from the online narrative frame questionnaire agreed to take part in the main study (Hanna and Heather). After this encouraging experience I decided to retain a combination of online narrative frame questionnaires and SNA in the main study and to extend the data collection to include individual tweets from FLTs and online interviews to gain deeper insight into FLTs' Twitter-based practices.

*And...* alongside data analysis I started exploring *A Thousand Plateaus* (Deleuze & Guattari, 1987) and read extensively about the Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming*, which I found intriguing but initially could not really grasp. St. Pierre (2004), Mazzei and McCoy (2010) and Clarke and Parsons (2013) helped me to 'plug into' (St. Pierre, 2004) Deleuzo-Guattarian thinking and to connect these concepts to life within and beyond my research. Other researchers, e.g. Masny (2013), Waterhouse (2012) and Bangou (2013), showed me how Deleuzo-Guattarian thinking-doing research was put into practice in their research in language education and language teacher education. While all of these authors were helpful in different ways, I still struggled to 'apply' Deleuzo-Guattarian thinking in my own research.

*And....*the co-author of a previous publication introduced me to a Canadian researcher, after she had seen a presentation about his Deleuzo-Guattarian research and tweeted about it. Several e-mails and online research exchanges later this researcher invited me to contribute a book chapter to a book about Deleuzo-Guattarian



perspectives in Second Language education. During the development of my book chapter I started to think about the *received view* and the *contextual view* in human-technological relations (see Chapter 2.5). I had noticed previously that existing research on teachers' Twitter-based PD referred to Twitter as either a tool (e.g. Carpenter & Krutka, 2014), a medium (e.g. Quan-Haase & McCay-Peet, 2015) or a space (Rehm & Notten, 2016), but now I started wondering if Twitter could not be all this, and possibly something else. Writing this book chapter was entangled with other online research exchanges *on...and* with...*and* through Twitter, some of which led to collaborations with (doctoral) researchers and new opportunities for reflection and research dissemination (Emke, in press).

*And...* while I was trying to 'find my footing' in Deleuzo-Guattarian thinking-doing research, I encountered two research problems. Firstly, my initial analysis of the main study data, based on the GT approach outlined previously, revealed inconsistent patterns, both thematically and in participants' tweeting behaviour. Another challenge arose when I compared participants' tweets with the tweets from the Twitter network they had named as most influential for their PD. Contrary to my expectations, four participants had hardly used the hashtag of the Twitter networks in their tweets during the one-month data collection period per participant, and three participants had not taken part in any of the one-hour Twitter chats that these networks offered. Instead, I discovered new and surprising connections when I started to follow the movements of individual tweet and hashtag assemblages (see Chapter 5). While these two incidents would not necessarily have prevented me for continuing with a phenomenological research approach, they provoked me to engage with Deleuzo-Guattarian philosophy (see Chapter 3.3) and their concepts of *rhizome*, *assemblage* and *becoming* (see Chapter 3.4) more thoroughly and to search for an alternative research approach. In the

following months I revised my research questions (see Chapter 3.6) and started to experiment with a new conceptualisation of Twitter, which is described in the next section.

#### 4.4 The Twitter machine

My first experimentation with the Deleuzo-Guattarian concepts of *assemblage*, *rhizome* and *becoming* concerned the development of the concept of the Twitter *machine*. In a Deleuzo-Guattarian sense ‘experimentation’ means working with their philosophical concepts to develop new thinking-doing, e.g. a new concept.

As outlined before, current approaches in the literature seek to define Twitter as a tool, a platform or a space. In defining Twitter in these ways, Twitter is objectified, and thinking about Twitter in educational research is restricted to already existing categories. Thinking about Twitter within the Deleuzo-Guattarian concept of *machine* and its connecting concepts of *assemblage* and *rhizome* opens this territory to considerations about the productive powers of Twitter. For Deleuze and Guattari (1987) an abstract machine is not a machine in a conventional way, i.e. an apparatus that works mechanically. A Deleuzo-Guattarian *machine* “in itself is not physical or corporeal, any more than it is semiotic; it is diagrammatic (...) It operates by matter, not by substance; by function, not by form.” (Deleuze & Guattari, p. 141). This understanding of *machine* focuses on functionalities and not on identity, but it is not simply a theoretical construct: “Abstract machines operate within concrete assemblages [...] they make the territorial assemblage open onto something else, assemblages of another type” (Deleuze & Guattari, p. 510). Conceptualising Twitter as *machine*, as “a set of cutting edges that insert themselves into the assemblage” (Deleuze & Guattari, 1987, p. 333) draws attention to functionalities that operate on...*and* with...*and* through Twitter within tweet and hashtag assemblages. The functionalities of social media

platforms have been discussed in the literature, but they have not yet been systematically considered in an investigation within the territory of Twitter-in-education.

Baym (2015a) posited that in the age of the Internet social media practices are inextricably interlinked with corporate interests, a relationship which is often overlooked in academic research:

“The term “social media” puts the focus on what people do through platforms rather than critical issues of ownership, rights, and power. [...] Too few of us focus on platforms’ force as actors in this socio-technical economy.” (Baym, 2015b, p. 1)

Van Dijck and Poell (2013) investigated social media logic, and distinguished four elements: programmability, popularity, connectivity and datafication. The authors’ definition of programmability refers broadly to the reciprocal influences between users of a social media platform and the platform’s algorithms and interfaces to steer the data flow. Popularity “is conditioned by both algorithmic and socio-economic components” (p. 7) through a mechanism that values certain users higher than others, “partly because the platform tends to be dominated by few users with large followings, partly because the platform assigns more weight to highly visible users” (p.7). Retweets and likes work as endorsements and can enforce algorithmic workings of inequality.

Connectivity “refers to the socio-technical affordance of networked platforms to connect content to user activities and advertisers” (p. 8) and sees social technologies functioning as “organizing agents” (p. 8). In a similar vein Baym (2015a) assured that

“Connect” serves as a gloss for unspecified mechanisms through which the presence of interaction might be tied to income-earning potential and it obscures the hard work that “connecting” entails.” (Baym, 2015a, p. 5)

The fourth element, datafication, is concerned with invisible processes of social media platforms to measure and quantify social activities “with the potential to develop techniques for predictive and real-time analytics” (p. 9).

What does that mean for my research? A Twitter user is part of a tweet assemblage, of “a collection of heterogeneous elements” (Wise, 2011, p. 92) that are in constantly changing relations to one another. Assemblages function and they create territories, which “are not fixed for time, but always being made and unmade, reterritorializing and deterritorializing” (Wise, 2011, p. 92). The Twitter *machine* plugs into the user timeline, i.e. the tweet assemblages a Twitter user sees when he/she opens Twitter through the way it functions (see section 2.6.3) and through its algorithmic interventions: “On sites like Twitter or Reddit, users can post content and steer information streams, while the sites’ owners may tweak their platforms’ algorithms and interfaces to influence data traffic.” (Van Dijck & Poell, 2013, p. 5). These algorithms are “proprietary and thus kept a secret” (p. 6), hindering public or individual scrutiny. Perrotta and Williamson (2016) saw algorithmic assemblages as “the hybrid product of algorithmic forms of data analysis that can only function in relation to myriad other elements” (p. 6). Twitter influences users’ viewing experience through recommendations but also through interference with the user timeline.

Although a user’s timeline mostly shows the tweets from humans and non-humans (bots) this user follows in reversed chronological order, Twitter’s recommendation system and Twitter metrics intersect the user timeline and hence influence the user experience. Conversely, situated human-technology encounters

within tweet assemblages feed into the workings of the Twitter machine, continually influencing and changing the algorithms that are used to construct personalised user recommendations for tweet and hashtag readings, followings and user metrics. These complexities and dynamics are amplified through Twitter's working(s) with software and technological devices beyond the platform in the construction of a multitude of digital data assemblages that are mutually dependent and constantly and dynamically re-configuring each other. This happens, for instance, when marketing companies use Twitter data to target advertising campaigns, when a researcher captures tweets to learn more about the target group of his/ her research or when a Twitter user captures tweets of a Twitter chat as a form of summary.

While Twitter users can disable recommendations and targeted advertising in their settings, they still receive paid-for advertising tweets in their timeline, as Twitter heavily relies on advertising and data licensing as sources of income (Beers, 2018; Das, 2018). In short, human-technology encounters on...*and* with...*and* through Twitter produce complex, unpredictable and dynamic digital data assemblages:

“They are configurations of discourse, practices, data, human users and technology. [...] Each digital data assemblage represents a unique and specific moment in time – a form of “frozen data” – that then goes on to change again.” (Lupton, 2017, p. 340)

Deleuzo-Guattarian thinking did not only produce for me a re-conceptualisation of Twitter but also led to a re-conceptualisation of my entire research approach. This will be explained in the next section.

#### 4.5 Looking forward: Methodology assemblages

Thinking about methodology within the concepts of *rhizome*, *assemblage* and *becoming* provided the opportunity for an entirely different conceptualisation of the research design. In this section I will describe how this new framework was developed and enacted.

Thinking about methodology differently seeks to break away from a dualistic thinking of qualitative/quantitative methods and a focus on comparing different methods to see how they could be used to complement each other in the pursuit of finding out ‘the truth’ about a social phenomenon. Instead I conceive of methodology as assemblages of human elements (e.g. the researcher, participants, other (doctoral) researchers, supervisors) and non-human elements (e.g. software/tools/platforms employed for data collection, analysis, documentation and communication, Twitter, tweets) that have the capability of producing situated knowledges (Haraway, 1988) about FLTs’ Twitter based PD.

During the non-linear and constantly evolving process of re-conceptualisation, which took almost two years, I developed a series of visuals alongside data collection and data analysis. These experimentations were inspired by Deleuzo-Guattarian notions of maps as open and flexible vehicles, which can be entered in multiple ways (Deleuze & Guattari, 1987). The visuals produced in this way were designed for a specific purpose, such as a conference, a researcher workshop or a book chapter, but they were never finished and never complete. Instead, sets of visuals constantly morphed into other sets of visuals. Figure 4.1 provides the example of such a visual, which I used in a presentation at the 2017 conference of the Association Internationale de Linguistique Appliquée (AILA).

**Figure 4.1** AILA 2017 conference slide



The visual in Figure 4.1 depicts the landscape of FLT's PD on...*and* with...*and* through Twitter, which sits within the wider territory of Twitter for PD. An enlarged version of Figure 4.1 is provided in Appendix 11. Enlarged visualisations are provided in the last part of this thesis, starting with Appendix 11, to improve the legibility of some figures depicted in this thesis. While placing all enlarged visualisations at the end of the Chapter 'Appendices' disrupts the numbering ranking order which is conventional in a thesis, this procedure facilitates the reading of the paper copy.

The different research assemblages (depicted as five boxes in Figure 4.1) constitute components of the methodology assemblages, which at the time were 'Twitter and professional development' (theorising the relationship between Twitter and teacher professional development), 'Thinking with Deleuze' (thinking-doing Deleuzo-Guattarian research), 'Pathways/Data collection' (theorising-experimenting the relation between online narrative frames, tweet capturing and interviews), 'Rhizoanalysis/Data analysis' (theorising-experimenting with Situational Maps, GT and SNA) and 'Dealing with challenges' (engaging with practical and ethical challenges). These elements

themselves were constantly changing products of complex, open and not always directional processes of thinking-reading-discussing-writing-doing research. All boxes include textual and media resources, such as YouTube videos to make the content more transparent. The topographically informed notion of a research landscape that can be entered in different ways is helpful for disrupting conventional, text-based and linear thinking in pursuit of re-conceptualising methodology without “simply re-inscribing the old methodology with a new language” (Mazzei & McCoy, 2010, p. 504).

Conceiving of research methodology as *assemblage* (Deleuze & Guattari, 1987) foregrounds the joint workings of its different components and hence the processes involved in thinking-doing research rather than investigating its components in isolation. Methods are not mere tools; they are regarded as multiple pathways into the research landscape (data collection), allowing for relational cross-reading of data (data analysis) in pursuit of the production of situated knowledges. This is a distinctive move away from an understanding of doing-research as applying ‘suitable’ tools (methods) in the ‘right’ way to produce ‘a truth’ about a social phenomenon. *Assemblage* thinking within methodology *and* thinking methodology within the Deleuzo-Guattarian concept of *assemblage* opens up research thinking-doing to explore novel ways. In this research, these novel ways concern putting methods, which worked within a different ontology, to use in a Deleuzo-Guattarian research framework. These ideas will be further explained in the next three sections.

#### **4.5.1 Making Grounded Theory work in a postmodern world**

Grounded Theory (GT) is not immediately compatible with postmodern beliefs of anti-representation and post-humanism, not least because it is based on the notion that the world relies on structures which have meaning for humans: “Grounded theory is a performance, a set of performative and interpretive practices and ways of making the



world visible. This commitment to visibility is anchored in the belief that the world, at some level, is orderly, patterned, and understandable.” (Denzin, 2007, p. 459).

Clarke (2003, p. 553) conceded that “the postmodern turn has provoked an array of concerns about the nature of inquiry and crises of representation and legitimation” and sought to reframe GT around the postmodern turn. The author argued that postmodern properties such as the notions of perspective and situatedness, deconstructive analytic interpretation via open coding and multiple readings, and an underdeveloped but still existing understanding of differences, have “always already” (Clarke, 2005, p. 6) been a part of GT. Contrary to traditional GT, Clarke (2005) does not regard social processes as the unit of analysis, but the situation itself: “Situational analyses seek to analyze a particular situation of interest through the specification, re-representation, and subsequent examination of the most salient elements in that situation and their relations.” (p. 29).

Clarke (2005) also conceded that some elements in traditional GT, which she termed “positivist recalcitrancies” (p. 2) sit awkwardly within a postmodern understanding. This is the reason why GT needs to be “pushed around the postmodern turn by providing alternative grounds for grounded theorizing” (p. 2). In order to achieve this, the author advocated six strategies to make GT usable for and within postmodern research, which involve building upon GT’s postmodern strengths *and* working against GT’s positivist foundations.

The first strategy explicitly assumes and acknowledges the embodiment and situatedness of knowledge producers (including researchers) and the existence of multiple knowledges. This principle problematises the positivist understanding of the researcher as disembodied, all-knowing producer of an objective truth and instead calls

for a research framework that acknowledges the legitimacy of multiple knowledges and for researchers to make the heterogeneity of perspectives embedded in the research transparent, including their own. These notions align well with the Deleuzo-Guattarian understanding of knowledge-production as an a-centred, non-linear movement that involves the constant connecting, de-connecting and re-connecting of multiplicities of human and non-human elements that is central to their concepts of *multiplicity*, *rhizome* and *assemblage*. They also align well with an understanding of the ‘rhizome researcher’ as moving in-between the research (Clarke & Parsons, 2013).

The second strategy states that data analysis should focus on the situation of the phenomenon under investigation. Clarke draws on pragmatism, feminist thinking and gestalt theory to inform her understanding of situation. Feminists’ notions of “situated knowledges” (Haraway, 1988) and a reading of gestalt theory, which “grants a kind of agency to the situation per se” (Clarke, 2005, p. 23) could be seen as compatible with Deleuzo-Guattarian notions of the temporality of all knowledges (as opposed to a universal truth) and their understanding of assemblages exercising agency (rather than humans exercising agency). However, in drawing on pragmatists’ notions of perceived real situations having real consequences, or “perspective dominates the interpretation upon which action is based” (Clarke, 2005, p. 21) Clarke’s perspective still seems very human-centred. In fact, there could be the impression that Clarke’s understanding of situation bears the danger of falling back into representation, but she shows a very practical way of dealing with this inherent danger in the third principle.

The third strategy explicitly calls for researchers to move away from simplifications and homogeneity towards data analysis that embraces complexities, differences and heterogeneities. Here, Clarke (2005) built on and expanded the first strategy by introducing three kinds of maps as analytical tools: Situational Maps, Social

Worlds/ Arenas Maps and Positional Maps. In general, the use of maps for data analysis sits well with the Deleuzo-Guattarian concept of *rhizome*: “The rhizome is altogether different, a *map and not a tracing*.” (Deleuze & Guattari, 1987, p. 12). A map with multiple entryways is “open and connectable in all its dimensions; it is detachable, reversible, susceptible to constant modification” (p. 12), thereby making it a well suited instrument to work against binaries and hierarchical structures.

The fourth strategy argues towards the creation of sensitising concepts and theoretically integrated analytics, instead of pursuing a formal theory. This reimagining of GT resonates with the Deleuzo-Guattarian perspective of concepts as having a temporal existence and with post-structuralists’ rejection of an absolute truth. It also aligns with the Deleuzo-Guattarian idea of working, or experimenting, with concepts to produce difference.

The fifth strategy deals with the use of three kinds of maps for doing situational analyses. Clarke (2005) argued that “so-called contextual elements are actually inside the situation itself. They are constitutive of it, including structural and power elements, and we can map and analyze them as such” (p. 30). This understanding of context is very different from an understanding of context as a separate entity. Acknowledging ‘context’ as a constituent element of equal relevance to humans in the situation under investigation opens the analysis to embrace fluidity, dynamic and rhizomatic movement. ‘Context’ is not static, it has agentic and productive power within situated assemblages and is re-produced through assemblages.

Lastly, as a sixth strategy, Clarke called for an understanding of different kinds of discourses as practices in GT. This perspective directs the researcher’s view towards

the performative nature of discourses, which would align with the Deleuzo-Guattarian notion of ‘machines of enunciation’, which are part of the concept of *assemblage*.

Clarke’s Situational Analysis maps have been used in academic research, and some examples are provided on her website (Clarke, 2013). Den Outer, Handley and Price (2013) used situational maps, social worlds/arenas and positional maps, in investigating to what extent they can foster reflexivity in educational research. The authors found that the situational maps and the social worlds/arenas maps enhanced researcher reflexivity.

In the areas of teacher learning and professional development situational maps have been used in doctoral research by Loe (2010) and Strom (2014). Both researchers followed the basic proceedings of traditional GT and found situational maps useful for visualising relational connections. Their experiences were helpful for my initial drafts of analytical maps.

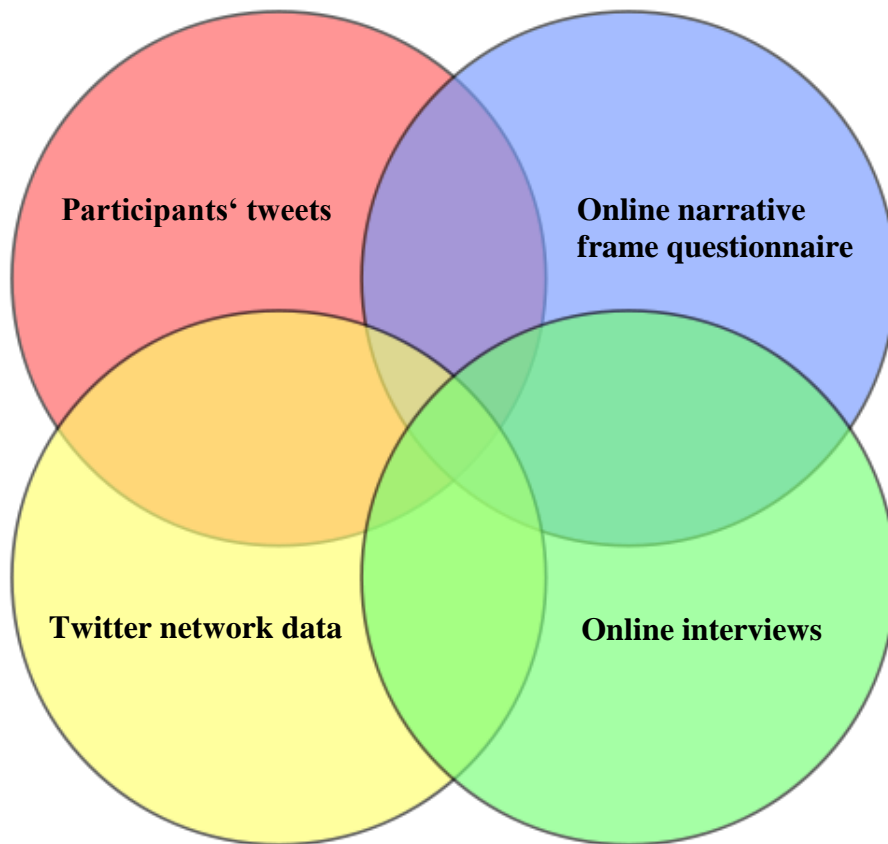
Mathar (2008) assessed the methodological value of Situational Analysis for educational research. He saw some epistemological problems with this approach, such as Clarke’s definition of situation and her understanding of relational analyses. However, in his overall conclusion Mathar stated that in view of discussions on the value of method in postmodern times (Law, 2004), which tend to “solely ask a lot of (justifiable) questions” (Mathar, 2008; n.p.), Clarke’s Situational Analysis provide answers which are grounded in an established method.

Clarke’s (2005) convincing argument for a Situational Analysis approach, Mathar’s (2008) reasoning and the research application examples I found in the works by Strom (2014), Loe (2010) and Den Outer et al. (2013) inspired me to experiment with Situational Analysis and to integrate it in the new research framework. This new

framework is described in the next section (data collection) and in section 4.5.3 (data analysis).

#### **4.5.2 Pathways into the research landscape (data collection)**

The main study comprised four pathways into the landscape of FLT's PD on...*and* with...*and* through Twitter: An online narrative frame questionnaire (in the following referred to simply as 'questionnaire'), tweets from six research participants, tweets from the Twitter network these six participants deemed most influential for their Twitter PD and recorded online interviews. These pathways existed on their own but worked within data collection assemblages: The questionnaire yielded data that connected with tweet data in the production of the semi-structured interview guidelines. Concurrently, 'finding' research participants through the questionnaire informed the collection of participant tweets and the collection of tweets from Twitter networks. Figure 4.2 shows the interconnectedness of the pathways in four overlapping circles.

**Figure 4.2** Pathways into the research landscape

The data collection took place between September 2016 and mid-March 2017 and comprised a total of 5.5 months (see Appendix 1). The collection processes involved a certain linearity, i.e. the questionnaire necessarily preceded the successive steps of tweet capture and interviews, as these steps relied on information from research participants which were invited through the questionnaire. However, it is important to note that the relational cross-reading of data (data analysis) did not follow a linear approach, as will be explained in section 4.5.3.

**Online narrative frame questionnaire.** Building on the positive experiences gained in the pilot study, the data collection started with a questionnaire, which I sent out on Twitter at different times from September to mid-October 2016. Figure 4.3 shows the text of the tweet that was sent out 135 times during this first launch.

**Figure 4.3** Tweet linking to the online narrative frame questionnaire



The questionnaire informed participants about the purpose of the study and provided details on ethical research, such as the right to confidentiality, anonymity and safe data storage (see Appendix 2). Compared to the text used in the pilot study, slight changes were made to incorporate supervisor and peer feedback (see section 4.2.1.). At the end of the questionnaire participants could leave their e-mail address, if they wanted to participate in the next stages of the study. Finding research participants was not a straightforward process and involved two launches of the questionnaire. The second launch of the questionnaire took place from mid-January to mid-February 2017, during which time the tweet in Figure 4.3 was sent 82 times. An account of the data collection problems encountered in this research and how these problems were resolved is provided in section 5.7. Ultimately, 14 complete data sets from the questionnaire could be included in the main study. A chronological overview of the data collection process and the collected data can be found in Appendix 1.

**Online meetings.** I contacted the six research participants Hanna, Heather, Laura, Rachel, Marc and Maria, who had indicated in the questionnaire that they wanted to be involved in the further stages of the research, and offered them Skype online meetings. The purpose of these online meetings was to inform the six participants about the next stages of the research and to ensure that they felt comfortable with their

continued involvement. During the meetings I took notes, such as the Twitter hashtag network participants deemed most influential for their Twitter-based PD (see Chapter 5.6), and completed the research notes immediately after the meeting. We also discussed research ethics regarding data ownership and data privacy, which led to a change of schedule for the data collection of tweets (see section 4.5). In the online meetings all participants stated that they preferred to know when their tweets were collected and used in research. The research participant Hanna was particularly sensitive to this issue and stated that “tweets are private and exploiting tweets without telling the sender is violating” (Hanna, research notes). This incident strengthened my awareness of data privacy and ethical issues and had implications for the research design of the main study (see section 4.6).

**Tweet capture.** The software NodeXL connected with the Twitter API in capturing participant and network tweets. The Twitter API (Application Programming Interface) is a set of rules or specifications that determines the interaction between different software. Since the Twitter API only allows tweet capture from networks or individuals for seven consecutive days per query, coverage for a full month involved collecting data in four to five spreadsheets. While quite laborious, this system allowed me to gain a very detailed insight into the weekly activities of participants and into the activities that took place in a network. All tweets were read closely during data capture. This enabled me to follow the rhizomatic movement of tweet and hashtag assemblages and to identify suitable tweets for the semi-structured interviews.

**Interviews.** Bold (2012) asserted that “[T]he use of narratives has clear links with postmodern thought since narrative creation usually encourages reflexivity and acknowledges that truth and certainty are unstable” (p. 13). The purpose of the interviews in the main study was to develop a deeper understanding of the



functioning(s) of the different elements of tweet assemblages, to find out about connections with teaching practice and to enquire into the effects (actualised becomings) of assemblages.

To achieve this, I opted for the use of semi-structured interviews, which “gives a certain degree of flexibility so that as the interview progresses the interviewer will ask follow-up questions for interviewees to clarify or elaborate.” (Barkhuizen et al., 2013 p. 17). Participant data from the questionnaire informed the first and the last part of the interview guideline for the interviews with the six research participants (see Appendix 3). The interview questions were not shared with the participants prior to the interview. Appendix 3 shows the interview guideline for the participant Hanna. As visible in the interview guideline, the middle part of the interview was informed by a selection of tweet assemblages from the tweets that were collected from each participant over a period of four weeks. As an introduction to this part of the interview, a picture of the participants’ ego-network was shown via the Skype screen sharing function. Appendix 3 illustrates Hanna’s ego-network over a period of one week, i.e. the connections Hanna had with the Twitter accounts in the pictures via tweets or retweets. It should be noted that almost all profile pictures shown in Appendix 3, including Hanna’s picture, have been changed in the meantime. In the next step, selected tweet assemblages were shown to participants via the Skype screen-sharing function. Both the picture of a participant’s ego-network and the pictures of selected tweet assemblages operated as a form of Stimulated Recall (Calderhead, 1981) in the interview. Stimulated Recall involves the use of audio and/or visual material “to aid the participants’ recall of his thought processes at the time of that behaviour” (Calderhead, 1981, p. 212). Typically, Stimulated Recall has been used to investigate teachers’ thought processes; relevant examples include a study of online peer tutors (De Smet, Van Kneer, De Wever &

Valcke, 2010) and an investigation of teachers in Germany (Messmer, 2015). However, in my research Stimulated Recall was used differently: it was employed to gain insight into the ‘story’ of tweet assemblages, i.e. I wanted to find out about the situated human and non-human elements that were involved in the construction of tweet assemblages. Furthermore, I was interested in the connections of tweet assemblages with participants’ (teaching) practices.

#### **4.5.3 Relational cross-reading of data (data analysis)**

Data enquiry started alongside data collection, as advised by the Grounded Theory approach (Clarke, 2005). Initially, I concentrated on close reading of the questionnaires and participants’ tweets, which was accompanied by memo-writing to identify salient information and tweets that would inform the semi-structured interviews with participants. Table 4.2 shows an excerpt from a memo for Hanna and Rachel’s tweets:

**Table 4.2** Research memo Hanna and Rachel (excerpt)

<b>Participant name</b>	<b>Salient information</b>	<b>Comments</b>
Hanna and Rachel	On both accounts are tweets which show interactions with other Twitter users about teaching-related issues.	
Hanna and Rachel	Both Hanna and Rachel were involved in conversations on the use of Twitter for teaching/learning on <date>; different conversations!	<b>Note to self:</b> Make sure Twitter users cannot be traced through tweet text (ethics)!
Rachel	<Link to tweet> to be used in interview	
Hanna	<Link to tweet> to be used in interview	
Hanna and Rachel	Hanna and Rachel follow each other, so there is a possible overlap in their Twitter PLNs (will it show in the SNA ego-network or ELTchat/LTHEchat network analyses?)	<b>Note to self:</b> Look out for interesting-looking conversations that were discontinued and find out (possible) reasons in the interviews scheduled for Nov 2016

The left hand column of Table 4.2. shows the participant's name, followed by a column with salient information that could be found in the tweets and a column with information regarding the research process. Salient information here refers to information which provoked further enquiry into the rhizomatic movement of tweet and hashtag assemblages and into connections with other assemblages on and beyond Twitter. Such connections included connections with teaching practice, which were further explored in the interviews with participants. The comments in the right hand column show that the enquiry was not limited to connections but extended to disconnections. Including disconnections in the enquiry helped to avoid researcher bias towards 'finding' connective patterns in order to construct simplistic explanations for assemblage functionalities.

After the data collection was completed, transcription of the interviews started, accompanied by an initial SNA of the Twitter networks #ELTchat, #TBLTchat and #LTHEchat. Transcribing the interviews turned out to be very difficult and laborious, due to technical glitches. Four of the six recordings (interviews with Rachel, Marc, Maria and Heather) were of such a bad quality (persistent echo sounds) that parts of the interviews were barely comprehensible. The echo sounds started at different times during the recordings, but did not occur in the testing period that preceded the interviews. In view of the period between recordings and finished transcripts of more than six months, I decided against verifying the interview transcripts with the participants, as it was unlikely that they would have recalled the interview situation accurately. Instead, I marked the interview parts where I could not clearly hear what participants had said in the transcripts and left these parts out of the analysis. In another interview the recording equipment failed entirely, which I realised after the interview was completed. In this case I produced a memo of the interview on the day after the recording and sent it to the research participant (Laura) for verification and comments, which I did receive.

The data transcription problems stalled the process of data enquiry, but also provided an opportunity for re-considering the overall data enquiry framework. As a first step I decided to familiarise myself with the entire data, using the strategy of data walking (Eakle, 2007). Data walking is “an exploration of data as if you were an open and receptive traveler in a new and unknown territory” (p. 483). In my explorations I did not follow a particular routine. Sometimes I started with reading interview or questionnaire sequences, looking for connections with the theoretical literature or with other data sources. At other times I looked at participants’ tweets and network tweets, following their rhizomatic movement on and beyond Twitter or studied network

analyses to find similarities and differences in the structures of the Twitter networks #ELTchat, #TBLTchat and #LTHEchat. I captured my explorations in memos or noted down ideas in a copy of the original document.

Figure 4.4 shows an example of notes and highlights in a copy of responses to the questionnaire.

**Figure 4.4** Data walking: questionnaire

	H	I	J	K
1	3. I use Twitter for.....	4. I see Twitter as a professional learning tool because....	5. I connect with other (language) teachers on Twitter by.....	6. These connections help me to....
6	work only to network, keep up with our fast moving field.	It's easily accessible and updates constantly. Also, I feel it's not as 'involved' as Facebook.	sharing their posts, liking them, sometimes PMing	Feel part of a larger community and also motivate me.
7	... for; - keeping up to date with others working in ling-lang fields; - following up articles, blogs and papers of interest; (I only use Twitter for ling-lang)	... because; - I can connect easily with individuals and organisations working across the globe (especially useful as I have an interest in culture in the Efl classroom); - also, see above	... by; - following only people working in ling-lang and following up posts of interest; - Tweeting about ling-lang issues	...to; - access a broad range of perspectives and keep up to date on developments in the field
10	gaining / providing resources	easy, quick, worldwide connections (people & organisations)	interacting with other Twitter users (in chats)	Expectations (of usefulness)
11	sharing advice / help / opinions	less involvement	retweeting, following, liking tweets, Pming	Being part of a network / community
12	connecting with language professionals		reading their tweets	Keeping up to date
13	self-promotion	No use of Twitter as a professional learning tool	following up posts of interest	Sharing (experience, ideas)
14	professional / private use		searching for keywords	
15			following hashtags	
16	Twitter effectiveness			

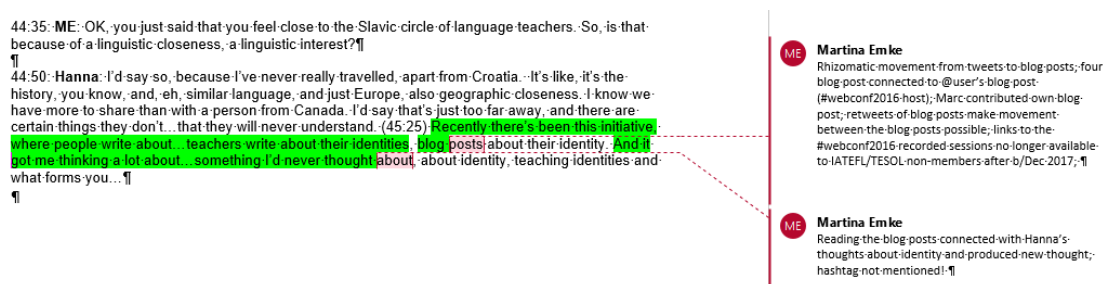
The columns in Figure 4.4 show the questionnaire items and list the participants' reply to each item. An enlarged version of Figure 4.4 is provided in Appendix 12. The text underneath each column shows recurring words in participants' responses. The highlighted text in bold and green contains salient information that was inferred from the responses and which provoked a relational cross-reading of data. Some of these elements, such as “useful” or “connecting with language professionals” were further explored in later stages of the data enquiry and entered the situational mappings (see next chapter).

While data walking is intentionally random, “an expansive means that avoids closure” (Eakle, 2007, p. 483), a more systematic approach is needed to ensure that data enquiry addresses the issue of anti-representation and a critique of anthropocentrism

adequately and consistently. I found relational cross-reading of data in interaction with the creation of situational mappings most fruitful for the data enquiry process.

Relational cross-reading of data functions like a map: I read data from any of the available data sources (questionnaires, tweets, interviews) always in relation to data from all other sources and in changing order. Figure 4.5 illustrates this process with the example of an interview excerpt. An enlarged version of Figure 4.5 is provided in Appendix 13. The highlighted text in Figure 4.5 refers to an interview sequence in which Hanna talked about a blog post on teacher identity she had seen through a tweet. The blog post encouraged Hanna to think about her own identity as a language teacher. Reading this interview sequence in relation to the network tweets of the #ELTchat network, in relation to Heather's tweets about the web conference #webconf2016 (see chapter 5.6.5) and in relation to Marc's tweet about his blog post about teacher identity (see chapter 5.6.5) produced new insight into the functionalities of connecting (see chapter 5.4). Through and within relational cross-reading of data the rhizomatic movements of tweets pertaining to the web conference #webconf2016 became apparent across tweets, Twitter hashtag networks and blog posts.

**Figure 4.5.** Relational cross-reading of data (example)



Researcher comments about these rhizomatic movements can be seen in the first comment in the comments' section on the right hand in Figure 4.5. The second researcher comment refers to a further step in the analytical process, which shows the

Deleuzian-Guattarian inspired perspective of the connections: “Reading the blog posts connected with Hanna’s thoughts about identity and produced new thought; hashtag not mentioned”. Without relational cross-reading of data, some salient connections may have been missed in the analysis, as Hanna did not mention either the web conference 2016 or the hashtag #webconf2016 in the interview. Relational cross-reading of data helps gaining multiple perspectives of a tweet without falling back into representation. This process was further supported through the combined workings of relational cross-reading of data and the creation of situational mappings.

As shown in the previous chapter, the issue of anti-representation and a critique of anthropocentrism are pivotal to an understanding of Deleuzo-Guattarian thinking, and they are integral elements of the concepts of *rhizome*, *assemblage* and *becoming*. Clarke’s *Situational Analysis* (2005) provides a flexible and open approach to data enquiry, which explicitly acknowledges the pluralism of voices in research, including the voice of the researcher, and regards ‘context’ as part of the situation:

“The important so-called contextual elements are actually *inside the situation itself*. They are *constitutive* of it, including structural and power elements, and we can map and analyze them as such.” (Clarke, 2005, p. 30, italics in the original).

*Situational Analysis* advocates the use of three kinds of maps - Situational Map, Social Worlds/Arenas Map and Positional Map - as analytical tools. However, in the course of this research, mappings based on a Situational Map approach have been found most fruitful for data enquiry. Neither Social Worlds/Arenas maps nor Positional Maps could be made to work with(in) the Deleuzo-Guattarian concepts underlying this research. The Social Worlds/Arenas map conceptualisation has its epistemological

roots in Symbolic Interactionism, which focuses on the symbolic interactions of humans in creating social worlds, and how these worlds in turn shape human interactions. From a Deleuzo-Guattarian perspective the theory's focus on the use of symbols to create meaning is problematic, both for its emphasis on human interactions and for issues of representation.

As outlined in section 4.5.1, Positional Maps require the researcher to conceive of positions not taken by actors in the situation under investigation. Den Outer, Handley and Price (2013) attempted to use Positional Maps to investigate reflexivity in educational research. However, the authors found that the production of a Positional map was “an impossible task” (Den Outer, Handley & Price, 2013, p. 1517), mainly because the use of a Positional Map as described by Clarke (2005) led to data ownership issues and representational issues that could not be resolved. I experienced similar challenges in my own research: mapping discursive positions that are missing in the data but could or should have been there incurs the risk of (over-)representing positions that might be strongly aligned with the researcher's own view. Instead of helping me to distance myself from the positions I saw presented in the data by introducing pluralistic views of language teachers' PD, I found that Positional Maps increased my bias towards certain positions, such as Personal Learning Networks.

The flexibility of Situational Maps allows the inclusion of “uncoded but carefully read and somewhat “digested” data” (Clarke, 2005, p. 84), as well as data which was collected on multiple sites. Taking Deleuze & Guattari's (1987) concerns regarding representation seriously, I did not want to resort to the traditional GT approach described in Chapter 4.2.1. Instead, relational cross-reading of data during and within the creation of situational mappings enabled me to make the human and non-human elements of situated tweet and hashtag assemblages and their relations visible,



and allowed for mappings of the rhizomatic movement of these assemblages and their connections with other assemblages on and beyond Twitter. The process of mapping creation and examples of situational mappings are provided in Chapter 5.

The final section of this chapter will deal with the ethical challenges which were encountered during this investigation and how these were met.

#### **4.6 On ethical research**

Ethical research can be envisaged as a process that transcends all stages of research. Consequently, frameworks which consider ethical questions that are most likely to occur during particular research stages can be very helpful. Creswell (2014, pp. 93-94) provided a table which lists the types of ethical issues researchers face before, during and after they have conducted a study and recommends actions that researchers can take to deal with these issues. This table, in conjunction with the British Educational Research Association's *Ethical Guidelines for Educational Research* (BERA, 2011) and with the recommendations on ethical research issued by the Association of Internet Researchers (AoIR) (Markham & Buchanan, 2012) guided this research. While the BERA guidelines place great emphasis on the protection of research participants, the AoIR guidelines also consider the Internet as a data collection medium. In 2018 the British Educational Research Association published new guidelines (BERA, 2018), which consider ethical issues associated with social media and online research, e.g. data privacy and data ownership, which were also encountered in this research.

However, it should be noted that social media research is still in its infancy (Lafferty & Manca, 2015) and involves "complex ethical dilemmas" (Henderson, Johnson & Auld, 2013, p. 546). Indeed, the question arises whether any set of ethical

guidelines is able to provide (novice) social media researchers faced with the intricacies of the social media logic (see Chapter 4.4) with the necessary means to meet the encountered ethical challenges adequately. I concur with Henderson et al. (2013) in a “call for researchers to report on the ethical dilemmas in their practice” (p. 546), which can serve and possibly help other social media researchers in their research endeavours. Therefore this section and Chapter 5.8 provide detailed accounts of the ethical challenges encountered in this study and descriptions of how these challenges were met.

In line with recommendations from the BERA 2011 guidelines, the AoIR 2012 guidelines and with the university guidelines ethical consent was sought and received from both the Open University and from research participants prior to any data collection during the pilot study and the main study. The questionnaires used for the pilot study and for the main study were set up using the password-secured, free online-tool eSurvey Creator (<https://www.esurveycreator.com/>), and they were tested prior to deployment. The software eSurvey Creator is operated by the Swiss-based enuvo GmbH. Collected data was stored on the company’s servers in Ireland, subject to European data protection laws. In addition, all tweet data and the collected interview data was stored on an external data storage device, which was securely locked.

However, as with all other areas in my research I found ethics to be a ‘moving target’. An example was the strong reaction participants showed in the online meetings with regard to data ownership and data privacy (see section 4.5.2). While there is no shortage of information and advice on ethical research in the literature, it is not always possible to anticipate the ethical challenges one encounters during the multiple processes of the research assemblage. In this research power issues, data ownership and data privacy constituted particular ethical challenges.

**Power issues.** An understanding of research as assemblage led me to consider the role and involvement of participants in more depth. My thoughts were not only influenced by academic literature in the vein of Deleuzian philosophy but also by discussions revolving around open scholarship in a networked learning context (Anderson & Dron, 2014) and in various online and face-to-face research exchanges with other (doctoral) researchers. Understanding research participants as co-researchers seeks to address the issue of power imbalance between the knowing-researcher and the not-knowing-participant and to overcome the binary distinction between the researcher as the acting subject and the participants as subjects which are being researched. In this study it is acknowledged that the researcher and the research participants are connected in multiple, complex and dynamic, not necessarily intentional ways, both on a human level through their tweets, direct messages, e-mails and online interviews, and on a non-human level, e.g. through the technology used for the communication. However, the term ‘co-researcher’, although initially considered as a better choice than ‘research participants’, will not be used in this thesis to avoid confusion with its understanding in the wider literature on participatory research, where co-research is seen as ‘research in partnership’ (Littlechild, Tanner & Hall, 2015, p. 19) and research participants are regarded as ‘peer researchers’ (Bradbury & Taylor, 2013, p. 162). An exception has been made in Figure 5.1. (Chapter 5.1), where the term ‘co-researchers / participants’ appears in an early illustration of the research process.

The first connection with the research participants was made when participants read the tweeted invitation to take part in this study, decided to fill in the questionnaire and provided their contact details. This allowed me to follow them on Twitter and to contact them, suggesting a one-to-one online meeting, which involved the use of the software Skype. The purpose of these meetings was explained in section 4.5.2. In my

meetings with the six research participants Marc, Rachel, Hanna, Laura, Heather and Maria I drew on the idea of self-disclosure (Abell, Locke, Condor, Gibson, Stevenson, 2006) to explain my position as researcher, i.e. that I do not see myself as an expert in this research process, but as a component that is no less but also no more important than other research components. I also explained that I understand it as my responsibility as an ethical researcher to make my research accessible to a wider public, including the use of open access opportunities whenever possible.

One of the topics discussed in the online meetings concerned the balance between ensuring participants' privacy and their right to be represented in the study as they wished. Subsequently two research participants (Hanna and Rachel) decided to adopt a pseudonym that I had suggested, one participant (Heather) chose a pseudonym, two participants (Maria and Laura) decided to retain their own first name and one participant (Marc) chose to be represented with his full name. It was somewhat ironic that Marc deleted his Twitter account some time after the data collection period, which now makes it impossible to track his tweets, which I had collected from Twitter, and to readily see the context in which they were sent. The practical problems associated with the deletion of this Twitter account are described in section 5.7.

However, Marc's deleting his Twitter account enabled me to quote Marc's tweets verbatim in this thesis without incurring the risk of violating research participants' or other Twitter users' privacy. While there is an ongoing academic debate as to "whether having a "public" Twitter stream constitutes consent to having it harvested" (Zimmer & Proferes, 2015, p. 258), I contend that revealing the identity of a Twitter user without having received prior consent for doing so is ethically problematic and should be avoided. Tracing tweets back to an individual is possible by simply inserting the tweet text into Twitter's search engine. In my research I have taken great

care to protect the data privacy of the research participants: as a rule tweets are not displayed. An exception has been made for Marc's tweets (which cannot be traced because he deleted his account) and for tweets from the official Twitter accounts of the teacher association TESOL and #ELTchat, which show the connections between Twitter hashtag networks (see Chapter 5). In line with Haraway's (1988) call for researchers to state their own partiality and with GT's principles I have also used examples from my own Twitter account in this thesis, e.g. in Chapter 2.6.3.

**Data ownership and data privacy.** Another topic of the online meetings pertained to the design of the main study. All participants stated in their online meeting with me that they preferred to know when their tweets were collected and used in research. The participants' strong reactions to privacy issues (see Hanna's example in section 4.5.2) in conjunction with my own considerations regarding the ethical use of participants' tweets let me reconsider the research design of my main study with regard to the use of tweets as interview stimulus. Instead of carrying out participant interviews prior to tweet collection, I decided to conduct participant interviews *after* having collected their tweets and the tweets from the Twitter network, which participants deemed most influential for their PD. Participants' knowledge about the time period in which their tweets were collected may have influenced their tweeting, although this only became apparent in one instance. In a tweet the participant Rachel asked me whether it was a problem that she did not use the hashtag #LTHEchat as much as she thought she would. In my tweet reply I assured her that this was no problem at all and encouraged her to tweet as she wanted to.

This chapter described the re-conceptualisation of the research framework from its beginnings, which were guided by phenomenological thinking, to a framework, which is grounded in Deleuzo-Guattarian thinking-doing research. This chapter also

showed how Deleuzo-Guattarian thinking-doing research was put to work in the main study, including the pathways into the research landscape (data collection ‘methods’) and relational cross-reading of data (data analysis). The next chapter will describe the ‘findings’ of the main study.

## CHAPTER FIVE: WORKING WITH SITUATIONAL MAPPINGS

This chapter describes the situational mappings and the social network analyses which were created within this research and the situated knowledges they produced. Situational mappings, which draw on Clarke's (2005) *Situational Analysis* approach, show the researcher's temporal reading of the data and provide a consistent and flexible framework for analysing relational multi-site data.

### 5.1 Experimentations with Situational Mappings

Clarke's Situational Maps are analytical ways or "strategies" (Clarke, 2005, p. 86) to investigate the elements in the situation under investigation and their relations. This means that the situation itself becomes the "locus of analysis" (p. 86), and the researcher's task consists in laying out the most important human and non-human elements 'found' in the situation and subsequently performing relational analyses to specify the nature of the relationships among the elements. An example of an abstract Situational Map, which Clarke provided to illustrate her approach (Clarke, 2005, p. 88), is shown in Appendix 4.

In a later work, which described how Situational Maps were put to work in empirical research, Clarke and Friese (2007) specified the nature of situations and made an interesting connection with the Deleuzo-Guattarian concept of *assemblage*:

"By taking the situation itself as the for-the-moment *final* unit of analysis, the question of temporality ('temporaryness') is foregrounded analytically. This links to an intriguing concept that has been circulating for some years: assemblages..." (Clarke & Friese, 2007, p. 390).

In the footnote of their article, Clarke and Friese claimed that “situations per se can be viewed as assemblages of sorts: people, things and actions brought together at a particular time and place under particular conditions” (p. 392). The ‘situation’ of FLT’s PD on...*and* with...*and* through Twitter is not one assemblage. Instead, it is a multiplicity of constantly evolving, rhizomatically moving and changing tweet and hashtag assemblages of human and non-human elements, which continuously connect with other assemblages on and beyond Twitter. This multiplicity has no beginning and no end. However, it needs to be acknowledged that the situation as the unit of analysis exists within the confines of a doctoral thesis and hence within boundaries of time, space and purpose. As such, the tweet and hashtag assemblages and their functional relations investigated and presented in this chapter are specific to their connectedness with the six research participants and with me: they are situated in analytical processes that seek to produce situated knowledges about FLT’s PD on...*and* with...*and* through Twitter.

Clarke (2005) advocated starting the analytical process with an abstract, messy situational map that contains “all the analytically pertinent human and non-human, material, and symbolic/discursive elements of a particular situation as framed by those in it and by the analyst.” (p. 87). To that end I started experimenting with different software. The first experimentations involved the two-dimensional software Popplet (<https://popplet.com/>). However, I found that the visualisations I produced limited rather than helped the analytical process: the software lacked flexibility, which led to visualisations that were square and linear and which fostered thinking in categories. These early experimentations, which were conducted alongside memo-writing and social network analyses, were nevertheless very fruitful for the development of the concept of the Twitter *machine*. For example, in processes of mapping the connections

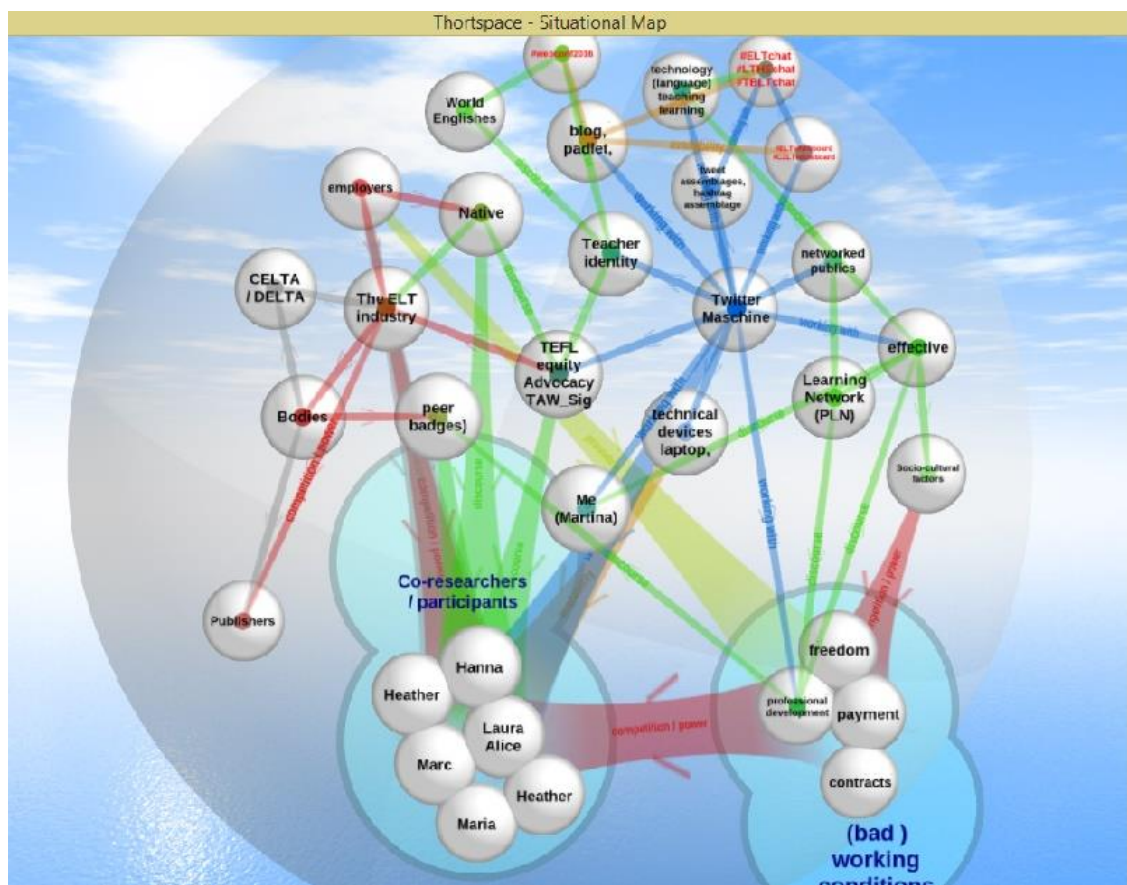


between research participants and the #webconf2016 hashtag network (see section 5.6.5), which occurred alongside engaging with the Deleuzo-Guattarian notion of *machine*, the thought about intensities of events (see section 5.5) was produced.

Next I experimented with the three-dimensional software Thortspace (<https://www.thortspace.com/>) and found it helpful for opening up the analytical process. This software allows for rotation and for different zooms, thereby making it possible for me to gain different perspectives on the research data, their human and non-human elements and their relations. I also found that putting situational mappings and SNA (as a method) to work in temporally foregrounding some relations helped in delineating functionalities and in working against representation. This can be illustrated with the example of the relationship between the idea of ‘personal learning networks’ and the sharing of content pertaining to language teaching and learning. An understanding of Twitter as a personal learning network and the importance of sharing resources between language teachers emerged as strong elements through close reading of the questionnaires and in the interviews with the six research participants. This confirmed previous findings in the literature about Twitter-based PD, which were outlined in Chapter 2.6.4. However, after a period of reading interview transcripts I found that my previous researcher training and my research experience ‘took over’, which led me to start thinking in categories, such as useful/not useful, professional/private and to look for ‘themes’ rather than to look for relational functionalities and the products of relations. In this situation mapping research participants’ connections with tweet and hashtag assemblages helped to rewrite participants’ perceptions and experiences as elements that entered situated tweet and hashtag assemblages. This shifted the focus from the individual to the collective and recentred the research perspective on the workings and productions of assemblages.

Figure 5.1 shows an abstract, messy situational mapping, which was created with the three-dimensional software Thortspace. The purpose of this illustration is to provide a snapshot of the complexity and rhizomatic movement of analytical processes in tracing and mapping productive tweet and hashtag assemblages. It is not intended, and indeed would not be reconcilable with Deleuzo-Guattarian thinking as outlined above, to provide one complete illustration as the final product of data analysis, which represents ‘the truth’. All analytical mappings, which were produced in this research, exist on their own and unfold on themselves, producing situated knowledges about FLT’s language teachers’ PD on...*and* with...*and* through Twitter.

**Figure 5.1** Situational mapping (based on Clarke (2005))



This situational map shows the human and non-human elements of situated tweet and hashtag assemblages that were investigated and the relations connecting them.

An enlarged visualisation of Figure 5.1 is shown in Appendix 14. The specification of these human and non-human elements was produced within processes of relational cross-reading of data, as explained in Chapter 4.5.3. The six research participants Heather, Marc, Maria, Hanna, Laura Alice (in the following simply called ‘Laura’) and Rachel are depicted in a big bubble at the bottom left in Figure 5.1. As explained earlier, participants were regarded as equal to the researcher in the production of this research and the thesis. Therefore they were denoted as ‘co-researchers / participants’ in this early mapping. I decided to place the research participants in one big bubble, as they are seen as a collective rather than individuals. This helped me focus on the workings and productions of assemblages without getting distracted by individual notions. Participants’ perceptions of and experiences with Twitter-based PD, as well as their professional practices and Twitter practices, are regarded as elements of tweet and hashtag assemblages. These elements are capable of shaping assemblages and being shaped by them, which necessitated more detailed analyses through situational mappings (see Chapters 5.2-5.6).

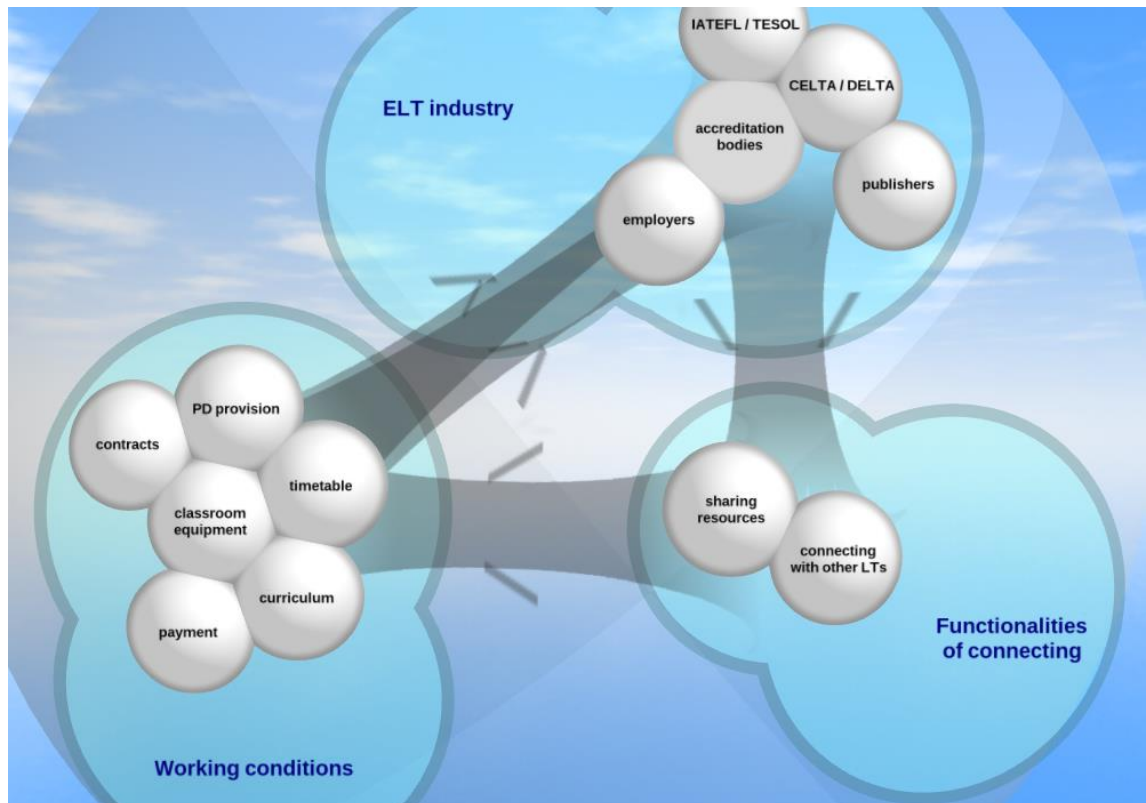
The second big bubble at the bottom of Figure 5.1 refers to FLTs’ working conditions and contains elements such as freedom/restrictions in teaching, payment, work contract and professional development. Working conditions and research participants are connected through relations of professional practices of language teaching and power, which is depicted in a thick line between the two big bubbles at the bottom. Three other thick lines emerging from the participants’ bubble connect to elements linked to the ELT Industry (upper left part of Figure 5.1), to salient discursive topics (centre of Figure 5.1), such as issues of equity (TEFL equity) and issues of identity (Teacher identity) and to elements linked to networked learning (upper right in Figure 5.1). In this part of the visualisation I also included the concept of Twitter

*machine* (see Chapter 4.4) to illustrate the connection between tweet and hashtag assemblages and what could be termed as the wider Twitter ecology.

As advised by Clarke (2005), I worked with both messy versions and more ordered versions of situational mappings throughout the research process, because messy versions can prevent premature analytical closure:

“Don't throw away earlier even if very messy versions. Often you want to go back because something was there that was important but now you are unable to remember.” (p. 109).

Ordered versions of situational mappings are used in this chapter to illustrate the workings of tweet and hashtag assemblages involving the Twitter networks #ELTchat, #ELTwhiteboard, #webconf2016, #TBLTchat and #LTHEchat (section 5.6). The ordered situational mapping shown in Figure 5.2 foregrounds working conditions (big bubble on the lower left), the ELT industry (big bubble on the upper right) and the functionalities of connecting as salient elements of FLT's PD on...*and* with... *and* through Twitter, which emerged through a series of mappings. These elements and their relations will be further explored in sections 5.2 - 5.4 (Note: the arrow-like features in the lines that connect the three bubbles do not signify directions but are part of the software). The enlarged visualisation of Figure 5.2 is provided in Appendix 15.

**Figure 5.2** Ordered situational mapping

To distinguish data contributions from participants who responded to the questionnaire only from the questionnaire contributions by the research participants Hanna, Heather, Laura, Maria, Marc and Rachel the following three rules are applied to participants' data vignettes in this chapter. Firstly, quotes from questionnaire participants are shown with an abbreviation of their names (e.g. M., questionnaire). Secondly, as stated before, the questionnaire allowed for anonymous replies. In cases where such a quote is used in this research, the quote is marked by a letter and a number (e.g. A1, questionnaire). Thirdly, quotes from Hanna's, Heather's, Laura's, Maria's, Marc's and Rachel's questionnaires are referenced by providing their participant names (e.g. Hanna, questionnaire).

## 5.2 Mobile working(s)

The ubiquity of the Internet, mobile devices like smartphones and tablet computers and cheaper Internet access have made human work mobile. Teaching is no longer restricted to a physical classroom but can be conducted online with the teacher being located in a different country from the students. This was the case for Heather and for Laura, who both live in the UK but teach international students online. PD has also become mobile and can be made to fit people's life and work. This happens for instance through webinars or podcasts, which questionnaire respondents stated they used for their informal PD. All six interviewed research participants reported that their workplaces and working times change frequently, so that flexible PD opportunities were regarded as highly desirable: With regard to Twitter Hanna remarked that "is very adaptable, so you can do that whenever you have time." (Hanna, interview).

FLTs' working conditions connected with FLTs' PD in in the construction of mobile workings in various ways. Mobile working(s) here refers to both a form of work which is not restricted to a particular time and space and to the mobile devices which are part of these processes, such as table computers or mobile phones. This could be seen from the wide range of working-related topics across all data sources and the frequency with which such topics occurred. Issues related to working conditions visible in tweets and retweets included the lack of PD provision by employers, fair payment, equal employment of non-native English teachers, fair work contracts, competition among FLTs based on payment or work experience and unequal power relations between employers and FLTs. The close relation between PD and working conditions also showed in the interviews (all participants), in the questionnaires and in blog posts by Marc and Heather.

Participants' work schedules often changed because of different and overlapping work contracts and led to participants' "Tetris-like timetable" (Heather, blog post). Appendix 5 shows that the six research participants worked for different organisations, sometimes even in a different country from the country they lived in, and they taught in different formats (face-to-face and online). All six participants taught English, one participant also taught German (Rachel) and another one Czech (Hanna). In the interviews all six research participants reported that they worked as much as they could, sometimes beyond full-time: "I teach full-time because I teach about...over thirty hours every week. [...] So including the travelling and the preparation that's more than full-time." (Hanna, interview).

Participants' fragmented working times, as one element of working conditions, connected with participants and mobile devices in the construction of tweets during commuting between different workplaces (Marc, Maria). Maria even bought a mobile device (tablet computer) to use her commuting time "better". (Maria, interview). The connection between a new mobile device and the Twitter language teacher network #ELTchat showed in Heather's and Maria's tweet assemblages. Both participants asked the #ELTchat Twitter network for recommendations regarding language teaching apps that could be used with a tablet computer. Overall, the time series analyses of participants' Twitter ego-networks did not show any discernible patterns for Hanna, Marc, Heather, Rachel and Maria with regard to tweeting times: participants tweeted at different times during the four-week data collection period per participant (see Appendix 1 for a summary of the tweet collection times), sometimes even late in the evening or very early in the morning. An exception was Laura's time series analysis, which showed some regularity. However, this was likely due to her use of a third-party

application: “It’s called Klout, it also schedules tweets, which I do when I’m busier” (Laura. interview).

The in-betweenness of tweeting as a situated activity related to fragmented working times but also went beyond: “I feel I use it a lot more when I’m commuting – or perhaps when I’m doing classes, probably just killing time, partly because of curiosity” (Marc, interview). “Sometimes there’s no tweeting because it’s family time. Sometimes I do the cooking and meanwhile I get stuck on the Internet” (Hanna, interview). Tweeting as a practice which is embedded in other practices is discussed in more detail later in this chapter.

Working conditions operated in the situated (non-)participation in moderated Twitter chats in different ways. Participants’ tweets (Heather, Hanna) and interview sequences (Heather, Maria) showed that participants could not take part in chats because they were teaching or occupied with teaching-related work, such as lesson preparation. During one #ELTchat Twitter chat Hanna reported that she was correcting student work, when she read a question by a language teacher on Twitter. She interrupted her work to answer the question without realising that this question was part of a moderated #ELTchat. Realising her misunderstanding, she stayed and took part in the chat.

Rachel reported in her interview that she used to take part in a Twitter chat at her workplace during lunchtime, but her colleagues, who did not possess any experience with Twitter chats, kept interrupting her because “they didn’t really understand that I had to do that then and there” (Rachel, interview). In tweet exchanges with a university lecturer she discussed the difficulties of explaining the situatedness of Twitter PD to co-workers. Rachel explained in her interview that she only tweets outside work, but felt



that “it’s wrong, because it should belong in your worktime” (Rachel, interview). She then added that tweeting outside worktime belonged to the “added pressure when you are hourly paid” (Rachel, interview). Overall, Rachel was very conscious of the social media policy at her workplace: “I think Twitter may have some drawbacks too and I am fairly guarded in my use of it. I am very aware of the Social Media policy of the institution where I work.” (Rachel, questionnaire).

### **5.3 The English Language Teaching industry**

The notion of English Language Teaching (ELT) as an industry showed in two questionnaires, in participants’ tweets and retweets (Marc, Laura, Maria), in one interview (Marc) and in two blog posts (Marc). Laura claimed that “language teaching is an industry that’s growing every day, especially now that teaching has taken to the internet as well” (Laura, questionnaire)”, and Marc said that “ELT is selling seats in the classroom and selling books as an industry “(Marc, interview).

Situational mappings helped to visualise the elements of the ELT industry assemblage and its relations of power. Figure 5.2 shows the elements as separate bubbles as employers (e.g. language schools, universities), publishers, accreditation bodies (e.g. British Council) and as teacher qualifications, such as CELTA (Certificate in Teaching English to Speakers of Other Languages) or DELTA (Diploma in Teaching English to Speakers of Other Languages).

Complex and dynamic relations of power and competition connect the ELT industry, working conditions and the functionalities of connecting. The ELT industry plugs into FLT’s PD activities (an element of the working conditions assemblage) by making PD a necessity for gaining employment: “My workplace puts pressure on us to do this.” (H., questionnaire). However, there is a reciprocal relationship, as PD can also

be made to work to “stand out from the crowd” (E., questionnaire) and to stay competitive “when I cannot compete on price with newer, less experienced teachers (Marc, questionnaire). Publishers, teacher qualifications, accreditation bodies and FLTs are connected by material relations of teacher preparation courses and the materials, such as coursebooks, which are used within these courses. On the one hand accredited teaching qualifications function as an employment requirement, restricting FLTs’ access to employment, if they do not possess such a qualification. However, these courses also provide employment opportunities for FLTs as teacher educators (Maria, Rachel). On the other hand beliefs about (effective) English language teaching as espoused in teacher qualification courses and in the course materials work within discursive tweet assemblages and teacher practice. An example for this is the discussion about ‘Learning Styles’, which was visible in #ELTchat network tweets. Rachel had not taken part in these network conversations but referred to a journal article about ‘neuromyths’ in ELT in one of her tweets. Referring to this tweet in her interview, Rachel gave the example of ‘Learning Styles’, which were still taught in the CELTA syllabus. Rachel stated in the interview that in her next CELTA course she was going to “explain to trainee teachers that there are different points of views on this” (Rachel, interview) and that she intended to share the article in her class.

Participants’ retweets (Marc, Hanna, Maria) and #ELTchat network tweets showed that the territories that the ELT industry covers through and within working conditions, ELT courses and coursebooks, are not undisputed. Language teacher collectives such as @TAW-SIG (Teachers As Workers Special Interest Group), who fight for better payment and fairer working conditions for English Language Teachers and @TefLEquity, who advocate equal professional opportunities for non-native English language teachers, worked against these territorialisations in their tweets.

These tweets covered issues related to FLT's working conditions and power relations within the ELT industry, and sought to encourage FLT's to organise or join a teacher collective or to establish a Special Interest Group (SIG) within the influential teacher organisation IATEFL (International Association of Teachers of English as a Foreign Language). Marc referred to these movements in several blog posts, two of which were commented on and retweeted by Maria, showing her support. Marc and Maria also had a tweet conversation about a blog post, in which Marc had suggested peer-led open badges as an alternative form of teacher accreditation. Unfortunately, this conversation is not visible anymore, because Marc deleted the account he used for his tweets.

#### **5.4 Functionalities of connecting**

One word that occurred frequently in connection with FLT's use of Twitter for PD across questionnaires, tweets and interviews was the word 'useful'. The word 'useful' pertains to two core functions that underpin FLT's use of Twitter: connecting with other language teachers and searching and sharing information.

##### **5.4.1 Connecting with other language teachers**

Generally, connecting with other language teachers was seen as easy and comfortable by research participants. Unlike Facebook, connecting on Twitter takes place in a one-directional way, simply by following another language teachers' Twitter account. Other ways of connecting with language teachers included "reading their tweets, responding, participating in live chats and retweeting" (C., questionnaire). Connecting with other language teachers is not restricted to Twitter. Heather explained in her interview that she went to a meet-up of language teachers where someone recognised her from tweets with the hashtag #ELTchat.

Connecting with other language teachers enriches and enhances FLT's teaching practice in multiple ways and makes different subject positions available to FLT's. Laura said in her interview that she likes reading tweets in other languages and finds Twitter useful for her professional development because she can connect with speakers of other languages. Such connections can be of "immediate use" (Heather, interview) in solving problems that occur during teaching: "It's so helpful to know I can ask a question using the #ELTchat hashtag and get a variety of helpful replies." (Heather, blog post). Examples with or without hashtags visible in participants' tweets included asking for advice in dealing with students who didn't do their homework (Hanna) and asking for advice regarding learning technologies (Maria, Heather). Twitter was seen to enable FLT's "to connect easily with individuals and organisations working across the globe" (A2, questionnaire), although conversations on Twitter sometimes worked "not very effectively" (M., questionnaire).

Tweet assemblages can also connect with other FLT practices, such as preparing a teacher training workshop. For her TESOL workshop on classroom observation an FLT tweeted a request for ideas on ideal lesson observations, which was replied to by twelve language teachers and led to longer conversations in some cases. Maria replied and suggested observing students' learning during the lesson by moving around the class rather than focusing on the lesson, while Marc suggested in his answer that "an obs should feel like good scaffolding. How do you get to where you need to go. Not 'what you did wrong'." (Marc, tweet). The workshop took place four days after the tweet request.

Existing Twitter connections can also be of use at a later point in time, as in the case of pursuing a qualification. Marc considered studying for a Master's degree, not least because "there are lots of people in my Personal Learning Network on Twitter

who are also Masters qualified teachers” (Marc, interview). Heather also thought about studying for a Master’s degree, inspired by other Twitter users:

“I was thinking of either the DELTA Diploma or a Master’s, neither of which is of course an immanent need, but it’s interesting to know what opportunities are out there. And, you know, I’ve learnt a lot from colleagues on Twitter who have done those kind of courses.” (Heather, interview).

The entanglement between teaching and changing working conditions produces tweeting practices where connecting operates to provide FLT’s with “contacts who work in the same industry as me in order to find possible projects, work, advice or courses.” (Laura, questionnaire).

Connecting with other language teachers also performs social functions that can be likened to the workings of a traditional teachers’ staff room, such as seeking and giving support, “finding out what other language teachers are talking about” (E., questionnaire), having “a meaningful dialogue with colleagues” (W., questionnaire) or combatting feelings of isolation at work by connecting with academics at other institutions and “learning from other people” (Rachel, questionnaire).

Tweet assemblages connect FLT’s “with other bloggers writing about education” (C., questionnaire), such as academic researchers: “it’s a very quick and easy way to get a snapshot into their research by reading their blogs” (Rachel, interview).

#### **5.4.2 Searching and sharing information**

Continuing professional development (CPD) is important for any professional. However, for FLT’s it plays a pivotal role in securing and maintaining employment.

CPD “gives me a chance to broaden knowledge & acquire key skills I can offer in the market” (M., questionnaire), enables FLT’s “to offer a top quality service” to clients (W., questionnaire) and to stay competitive “when I cannot compete on price with newer, less experienced teachers.” (Marc, questionnaire).

Tweet and hashtag assemblages, which often include hyperlinks, connect FLT’s with a plethora of information pertaining to language teaching materials, language teaching methods, and research on language teaching and learning: “I can read everything from academic articles to short tweets with others’ opinions.” (Heather, questionnaire). Overall, reading was mentioned as important for FLT’s’ PD by nine questionnaire respondents. Through tweet and hashtag assemblages FLT’s also connect to the latest developments in the language teaching industry, because “keeping abreast of new developments is vital!” (E.; questionnaire). Tweets can be performative for opening up teaching by providing “access to a wider range of ideas than I would have access to in my immediate teaching context.” (E. questionnaire). However, sometimes tweets and hashtag assemblages do not work with teaching practices. A questionnaire respondent wrote: [I have been] “trying to find ideas for material, but haven’t had any luck so far.” (A1, questionnaire). Another respondent wrote “I have been thinking on using Twitter for professional purposes but I haven’t designed a proper strategy yet.” (A3, questionnaire).

Tweets from research participants showed that the information they tweeted often came from newspaper or journal articles or from (other FLT’s’) blog posts. Five questionnaire respondents mentioned reading blogs as a source of informal PD. In some cases, third-party applications, such as Klout, were used to find content for their own tweets, which became apparent from the hyperlinks in tweets. Klout, a service that stopped operation in 2018, measured users’ social media influence, based on

information that included the number of Twitter followings and followers and the number of retweets. This service also provided information on user interactions with the content posted on social media. Hyperlinks in tweet assemblages are performative: they connect humans and information on and beyond Twitter in complex and dynamic ways, enabling the production of measurements of user behaviour and content value (depending on user-content interactions).

Information is further disseminated on Twitter by retweeting, and becomes more valuable if a retweet is accompanied by a personal recommendation. Tweet examples across all five hashtag networks include “Useful!”, “You should read this!” or “I found this interesting!”. Retweets accounted for most of the tweets that were collected from the six research participants. In some cases tweets were retweeted with a new hashtag, such as #edtech (educational technology), enabling new rhizomatic movement and new connections: “...particularly with retweets, somebody will retweet something by somebody I don’t follow, and then that leads me to think ‘Oh, that’s interesting!’, and then I start following them.” (Rachel, interview).

Tweet assemblages can also work as “a chance to reflect on my teaching” (M., questionnaire). Marc provided the example of a tweet conversation with another language teacher which shaped his vocabulary teaching:

“I find things through Twitter that I probably would never have thought of [...] like my own preconceptions being perhaps wrong. An example of this would be maybe how I teach vocabulary, and another teacher said, ‘Actually, it’s been researched on – this teaching vocabulary in sets isn’t so effective’. So one other possibility could be to teach it in context, avoiding lexical sets and avoiding synonyms.” (Marc, interview).

Sometimes reflection occurs much later than a tweet was sent, through connections between tweet assemblages and other assemblages: “No, but other things [...] pop into your head...oh yeah, that was something I read some months ago, that might be relevant in this particular moment.” (Heather, interview). “Twitter tells me to reflect on things, sometimes even weeks after an event. There’s a lot about Twitter on my blog as well.” (Marc, interview).

Another example was provided by Hanna, who had tweeted about her teaching experience with the software Quizlet in a #ELTchat Twitter chat, where vocabulary learning was discussed. In her interview she explained that she had learnt about Quizlet on Twitter and that she set up a Quizlet classroom for each class or for individual students (in her one-to-one teaching) as a “way of capturing the words” (Hanna, interview) that were used in the classroom. Before she introduced Quizlet in her teaching Hanna found that the (students’) words used during teaching were often “lost” (Hanna, interview) after a lesson. After each lesson Hanna added English words, and in some cases the Czech translation, and then shared it with her students, as “it’s their work. I did part of the work, and now they have to do the work.” (Hanna, interview). During the lessons Hanna kept referring to the Quizlet resource and found that “students know their vocabulary and are more confident using it” (Hanna, interview). In this example tweet assemblages connected with teaching and learning practices and a software to produce a vocabulary learning resource, which in itself could be regarded as assemblage.

Tweeting and language teaching also become entangled when a language teachers’ Twitter timeline is embedded in an institutional Virtual Learning Environment (VLE). Rachel, who took a special interest in the origin of English words, created a separate hashtag for her teaching:



“I am teaching a module called ‘The English language in the 21<sup>st</sup> century’. So as part of my teaching I’m drawing my students’ attention to language in newspapers, dictionaries and so on. I mean a lot of this is part of my teaching; it’s not just like personal relevant” (Rachel, interview).

Rachel’s students were not obliged to join Twitter, but some chose to follow Rachel on Twitter and provided her with tweet content: “This student that I taught last year, he now sometimes sends me things that might be interesting, and I think I’d like to build this up a little bit more.” (Rachel, interview). The rhizomatic movements of tweet and hashtag assemblages on and beyond Twitter co-construct the classroom teaching and open up the classroom for student explorations. At the same time the Twitter connections and tweet and hashtag assemblages are performative in constructing a different teacher-student relationship:

“[Twitter ] works for me in trying to reach out to some of my students and maybe connect with them [...], and be able to make those relationships in a kind of different way than through some of the formal university procedures.” (Rachel, interview).

Tweet and hashtag assemblages are performative in showcasing the variety of language teachers’ work, which may also include other work, e.g. as an author, conference presenter or webinar moderator, and their “enthusiasm” (Rachel, interview) for their subject. However, finding and sharing information is also performative for “publicising” (E., questionnaire) FLT’s work and for increasing FLT’s value as a useful contact. Laura reported in the interview that she tries to tweet content that is interesting for the people she is connected with, but she also seeks to increase her visibility: “I also

use my Twitter to give myself a good image for my online teaching business - posting photos etc” (Laura, questionnaire). During the data collection time Laura changed her Twitter handle, because she thought “that using my real name would help people I meet in real life or in other situations to find me online” (Laura, interview).

### **5.5 Intensities of events**

Tweet assemblages have varying intensities, which influence their rhizomatic movements and their connections with other assemblages on and beyond Twitter. Some tweets have a low intensity; they may receive little or no immediate reaction in the form of a reply or a retweet at the time of their sending, but may connect with other situated tweet or hashtag assemblages at a later time. This was the case with Heather’s tweet from January 2016 about her blog post on working as a FLT in Spain. Heather’s tweet included the hashtag #ELTchat and was retweeted in the #ELTchat network in November 2016, shortly after Heather had tweeted about another FLT’s blog post on FTLs’ working conditions. Another example concerned the sharing of resources from previous Twitter chats close to a Twitter chat about the same topic. In some cases the resources that were tweeted in connection with a Twitter chat dated back several years.

Tweet assemblages with a higher intensity often pertain to trending topics or to live events, such as webinars, conferences or Twitter chats. Twitter educational chats are moderated events pertaining to a particular topic. The chats often take place for one hour and may be structured by questions which are available prior to the chat. Since Twitter chats are publicly visible, they are principally open to all registered Twitter users. Chat participants need to include a designated hashtag in their tweets, so that other chat participants can identify them as belonging to a particular chat. The workings of the hashtag networks and chats #ELTchat, #TBLTchat and #LTHEchat are described in the next section.

In practice the boundaries between Twitter chats and other tweet conversations are fluid, since “chatting with other teachers on Twitter, often as a result of the “ELTchat” discussions” (Heather, questionnaire) also functions to connect with other language teachers. So what may start as a chat with the #ELTchat hashtag often moves into bi- or multi-lateral conversations without the hashtag. Such conversations can be difficult to follow, as they show in different threads from the original tweet. The rhizomatic movements of conversations increases the complexity of exchanges, but also affects their perceived usefulness: “Twitter has, in my opinion, limited usefulness. Even when organised using columns in Tweetdeck for example, it is very difficult to follow a conversation.” (L., questionnaire). Tweetdeck is a Twitter-owned cost-free service that allows users to structure and manage their Twitter account(s), their tweets and their timeline(s).

The fluidity of Twitter conversations is also influenced by individual tweeting practices: participants may forget to include the chat hashtag in a tweet or may decide that a particular tweet (conversation) is not interesting for the whole network and so omit the chat hashtag. Twitter users may also decide to use an entirely different hashtag, such as #ELT (English Language Teaching), instead of #ELTchat. Hanna used a different hashtag from #ELTwhiteboard for pictures related to her Czech teaching, while Rachel created her own hashtag for tweets pertaining to language learning and etymology. Furthermore, Hanna explained in the interview that she uses the hashtag as an exclamation mark, a practice she had seen other Twitter users exercising. In her tweets the hashtag #excited was an example for this individual preference. In summary, the varying intensities of tweet assemblages lead to variations in the speed and directions of their rhizomatic movements, making new and unexpected connections possible. However, (temporary) disconnections may also occur.

## 5.6 Networks, power and becomings

During the online meetings with the six research participants, which took place prior to the Twitter data collection (see Chapter 4.5.2), four participants (Hanna, Heather, Maria and Laura) stated that they regarded the Twitter language teacher network #ELTchat as most influential for their Twitter-based PD. The research participants Marc and Rachel named #TBLTchat and #LTHEchat respectively.

Social Network Analysis (SNA) of the #ELTchat network, close reading of network and participant tweets and following the rhizomatic movements of tweets and hashtags across and beyond Twitter led to the production of the mapping depicted in Figure 5.3. This visualisation shows relations between the hashtag networks #ELTchat, #TBLTchat and #LTHEchat, as well as relations to two other hashtag networks, #webconf2016 and #ELTwhiteboard. The last two hashtag networks emerged as salient networks, i.e. networks with connections to participants, where actualised becomings could be observed through the combined workings of relational cross-reading of data and situational mappings.

**Figure 5.3** Mapping of hashtag assemblages connected to #ELTchat

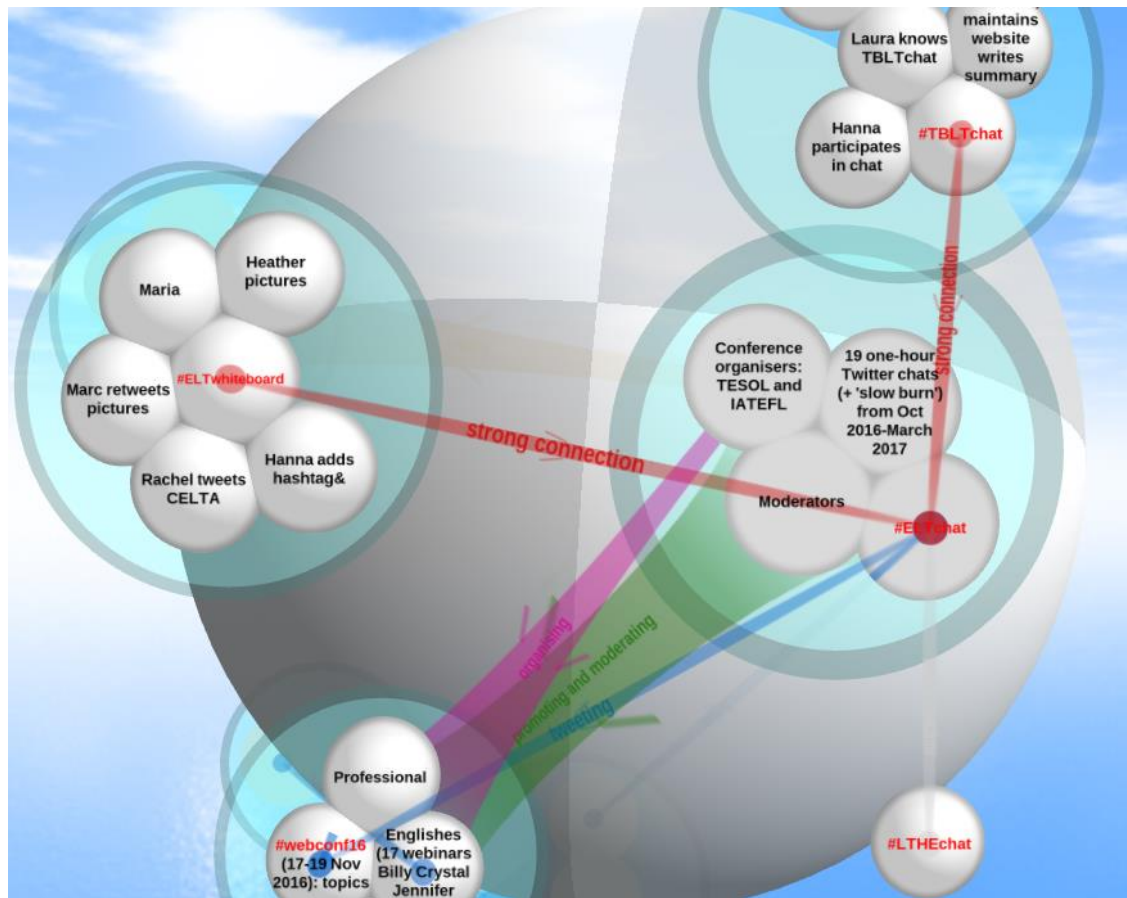


Figure 5.3 illustrates that the network #ELTchat (big bubble on the right) is connected with the hashtag networks #webconf16 (bubble at the bottom left), #ELTwhiteboard (bubble on the upper left), #TBLTchat (bubble at the top right), and #LTHEchat (small bubble at the bottom right). Due to a necessary compromise between resolution and legibility of the image not all of the content in the #TBLTchat and in the #webcon16 bubbles could be displayed in Figure 5.3; however, the content of these and the other bubbles in Figure 5.3 will be described in the following sections.

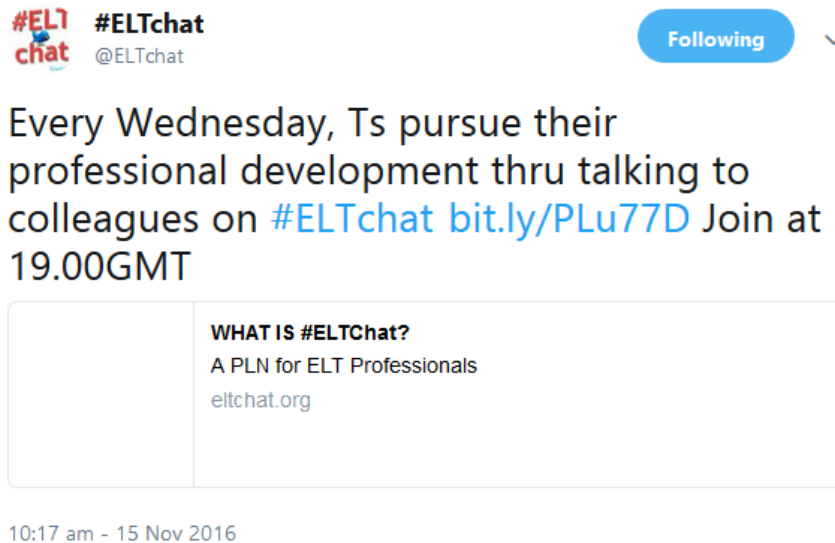
Relational cross-reading of data revealed multiple connections between the #ELTchat network, the #ELTwhiteboard network and the #TBLTchat network, both through hashtags in tweet assemblages and through patterns of following/being followed. The links between the #ELTchat network and the #webconf16 network (in

the following #webconf2016; see section 5.6.5) were further strengthened by tweets and retweets from one #ELTchat Twitter chat moderator and two organisational network actors (IATEFL and TESOL). These connections are depicted as thick lines between the #ELTchat and the #webconf2016 bubbles in Figure 5.3. By contrast, tweets and retweets from only two #ELTchat network actors could be found in the #LTHEchat network during the four-week data collection period of the #LTHEchat tweets (see section 5.6.3), and there were no connections through hashtags in tweet assemblages between the two networks.

The five Twitter hashtag networks #ELTchat, #TBLTchat, #LTHEchat, #ELTwhiteboard and #webconf2016 and their relations to each other and to the six participants (Marc, Maria, Heather, Hanna, Rachel and Laura) will be explored in the sections 5.6.1 - 5.6.5. These explorations are complemented with data contributions from questionnaire respondents, if available. Sections 5.6.6 and 5.6.7 will provide a summary of the findings with regard to the two research questions guiding this thesis (see Chapter 3.6).

### **5.6.1 #ELTchat**

#ELTchat is a hashtag that appears in tweet assemblages which address issues in English language teaching (ELT) and learning. However, the hashtag also relates to a Twitter network of ELT professionals, who conduct regular moderated Twitter chats, as a tweet from #ELTchat's official Twitter account illustrates (see Figure 5.4).

**Figure 5.4** #ELTchat promotional tweet

The chat topics are suggested and voted on by actors of this network, with the vote being organised by the official #ELTchat Twitter account. The official #ELTchat Twitter account is managed by one of the chat moderators. Figure 5.5 shows an example of a voting tweet:

**Figure 5.5** #ELTchat voting tweet assemblage

In this case most voters chose the first topic (What's your favourite teaching tool?), which is visible from the chat summaries page on the #ELTchat website (<http://eltchat.org/wordpress/eltchat-summaries-index/>). This page allegedly lists the topics of all #ELTchat Twitter chats that have taken place since 2010, linking to chat transcripts and summaries, if these are available. However, SNA of the #ELTchat network between October 2016 and March 2017 revealed that a chat on developing students' digital literacies was conducted on 2 November 2016, which is not listed on the #ELTchat website.

As a rule, one of the moderators generates the chat transcripts by capturing the tweets of the chat. The transcripts, which are hosted on a separate platform, are publicly visible and provide the basis for the chat summaries. Chat summaries compliment the chat transcripts. They are created by a chat participant or one of the moderators. ELTchat summary writers can claim a 'Blogger Badge' and display it on their own blog or website.

Close reading of the network tweets disclosed that chat summaries varied in format during the data collection time. Mostly, they consisted of a written text, which was either hosted on the official website or on the web presence of the network actor who created the summary. Other summary formats included the use of video, online poster walls (Padlet), presentation slides and a Google document. In some cases the chat summary-writer provided links to other resources related to the chat topic or a list of references for self-study.

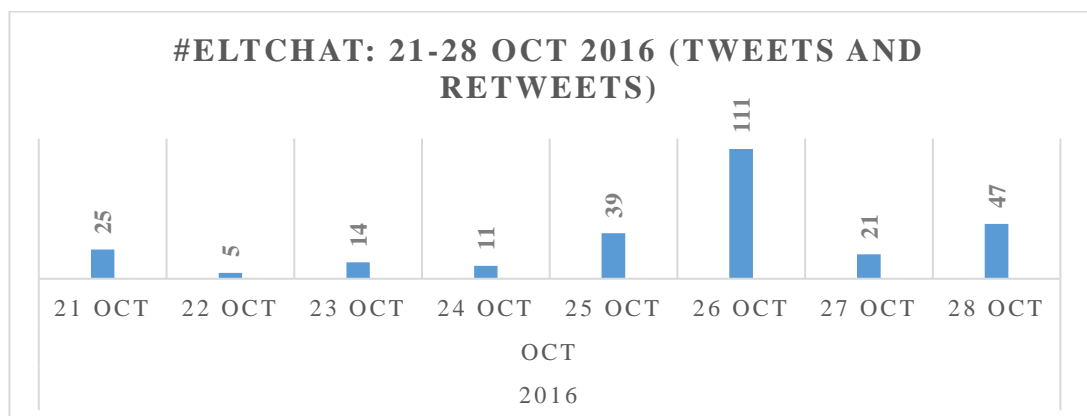
#ELTchat Twitter chats take place for one hour, followed by a 24-hour 'slow burn'. During this time network actors can still contribute to the chat. In this way ELT professionals in different time zones can participate in the chat, even though they might



not be able to take part in the synchronous discussions. The slow burn format is also used in other Twitter chats, such as #TBLTchat. This chat will be examined in the next section. Appendix 6 provides a list of the #ELTchat Twitter chat topics between October 2016 and mid-March 2017, ranging from issues pertaining to the four language teaching/learning skills (reading, writing, listening, speaking) over language teachers' digital skills and digital tools for language teaching to matters of diversity, inclusion and social justice. The chat topics display the diversity that language teaching practice constitutes as well as the interests of the network actors.

Time series analyses of all #ELTchat tweets and retweets revealed a recurring pattern of activity within this network: most tweeting activities took place on the day of the synchronous one-hour chats. This pattern is exemplified in Figure 5.6, which shows that the majority of tweets and retweets in the week of 21-28 October 2016 occurred on the 26 October. This was the day a Twitter chat with the topic 'Conversational skills in English may differ from a student's L1' was conducted (see Appendix 6).

**Figure 5.6** Time series analysis for the #ELTchat network (21-28 Oct 2016)

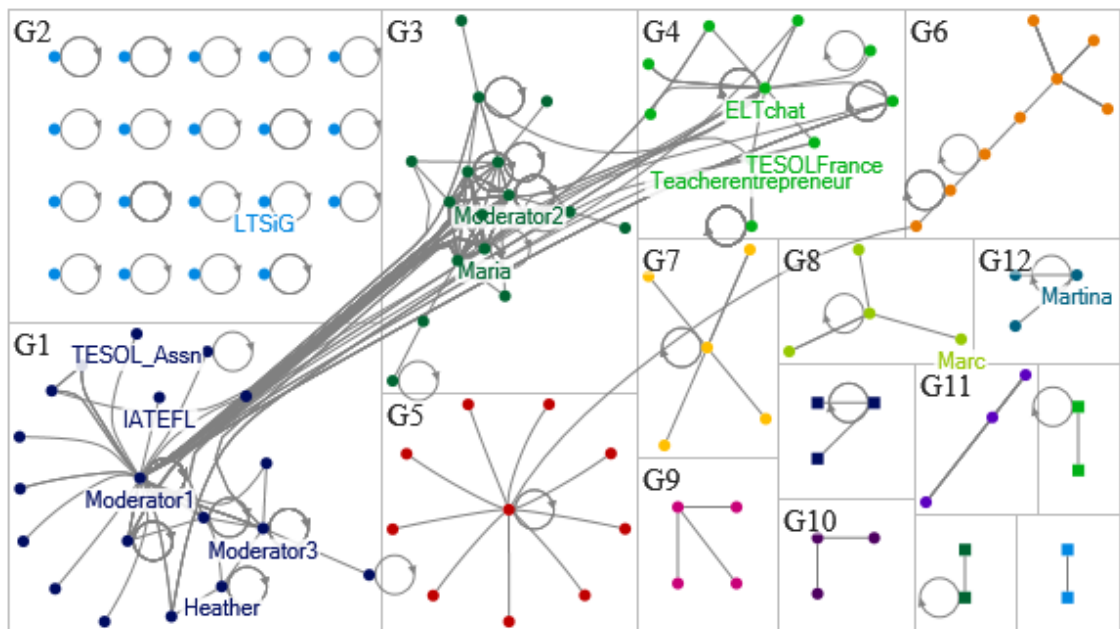


A closer investigation of the #ELTchat network structure across the complete data collection period showed both stable and fluid structures within the network. Overall, participants' interactions with the #ELTchat network varied greatly, not just between participants but also across the data collection period. As mentioned before, a comparison between participants' individual tweets and the tweets that occurred in the Twitter network these participants had named as most influential for their PD showed sparse or even no interaction within the four-week period that these comparisons were conducted per participant. However, relational cross-reading of data along the complete data collection period revealed occasional intense situated interaction between some participants and the #ELTchat network. Maria, for instance, suggested a chat topic, participated in the subsequent one-hour chat and wrote a detailed chat summary. She also provided the summary for another chat. Marc contributed to a Google document, which contains the summary of a chat he did not take part in. Hanna took part in a chat, which took place in spring 2017, i.e. more than two months after I had collected her tweets.

In Figure 5.7 and in Figure 5.8 two #ELTchat network visualisations are presented to exemplify the structural workings of this language teacher network and to map the entanglement with participants' practices. Visualising social networks requires the researcher and the software to work together in producing the illustration: "Experimenting with different layout types [...] can reveal useful patterns, relationships, or unusual features in the dataset being analysed" (Hansen, Shneiderman, Smith, 2010, p. 57). A network visualisation is not an 'objective' picture of the network. It relies on the algorithmic features provided by the software and decisions taken by the researcher, pertaining for instance to the overall layout and the labelling. Network visualisations have become very popular in recent years (Shneiderman et al., 2010, Wilson, 2017), and

they are powerful: “Images representing networks – particularly social networks – are used to demonstrate an interconnectedness that seems to have taken on an almost ideological tone...” (Wilson, 2015, p. 69). Therefore it is important to disclose how network visualisations are created. In the production of the network visualisations in this research NodeXL’s Clauset-Newman-Moore algorithm was used to group the network actors into clusters according to their connectedness, and the Harel-Koren Fast Multiscale algorithm was applied to enhance the readability of the illustrations.

**Figure 5.7** #ELTchat (one week in Nov 2016)



The visualisation in Figure 5.7 shows one-week network activity of the #ELTchat in November 2016. This network consists of 113 network actors and 535 tweets or retweets. Appendix 7 provides detailed information about participants’ interactions in this week and network metrics which refer to the positions of the network actors who are depicted in Figure 5.7.

In order to protect the data privacy of the six participants Hanna, Heather, Laura, Marc, Maria and Rachel, the exact weeks, in which the interactions in Figures 5.7 and 5.8 occurred, are not revealed. For the same reason pseudonyms have been chosen for individual network actors (e.g. Moderator1, Teacherentrepreneur), whereas the names of official Twitter accounts (e.g. TESOL\_assn, IATEFL, LTSIG, #ELTchat) have been retained.

The illustration in Figure 5.7 shows that the #ELTchat network is fragmented. There is intense interaction within and between three sub-groups of the network (G1, G3, G4), while other sub-groups of the network are disconnected from these groups. Some network actors are isolated, such as LTSIG in the box on the top left of Figure 5.7 (G2). With a network density of 0.012 this is a sparse network. The longest distance from any network actor to another is seven tweets, but the average path length is only 2.4 tweets.

The network consists of 16 sub-groups, with five sub-groups (G1-G5) accounting for about 65% of all network actors and almost 71% of all tweets and retweets. Among these five sub-groups three are particularly interesting because they are densely connected: G1 (box at the bottom left, contains the actors Moderator1, Moderator2 and Heather), G3 (box in the centre, containing Moderator 2 and Maria) and G4 (box at the top, containing the actor ELTchat). The sub-group G2 (box at the top left) contains a large group of actors who are isolated (almost 17%), among them IATEFL's LTSIG (Learning Technologies Special Interest Group). Finally, sub-group G5 (box at bottom, adjoining G1) shows a 'broadcasting' pattern, where a tweet of one network actor, who is at the centre of a sub-group, is retweeted or replied to, but little interaction with other network actors takes place.

A closer look at the tweet content showed that the tweet from the actor with a central position in G5 linked to her blog post on the TESOL website, which contained a list of resources pertaining to game-based language learning. The connection between the #ELTchat network and the teacher association TESOL could also be seen in the hashtag #tesol, which occurred 16 times in the whole network. Another language teacher association, IATEFL, did not feature as prominently in the hashtags, with the hashtag #iatefl occurring only four times in the network. However, both TESOL's and IATEFL's official Twitter accounts were mentioned by Moderator1, the central actor in the most active sub-group (G1), in a tweet that promoted the web conference #webconf16, which was jointly organised by these two teacher associations. This moderator also promoted a conference organised by TESOL France in a tweet, linking the sub-groups G1 and G5.

Moderator1 was one of three moderators who hosted the one-hour ELTchat Twitter chats between October 2016 and March 2017. A closer look at tweets from the chat that took place during the week which is visualised in Figure 5.7 revealed that Moderator1 invited chat participants to join the free web conference #webconf2016. The chat tweets also showed that Moderator1 was one of the hosts during this web conference. Furthermore, the web conference #webconf2016 was promoted by the network actor LTSIG in G5. Its frequent mentioning in network tweets and its connection with the research participants Heather, Marc and Hanna in tweets and retweets made the web conference hashtag #webconf2016 interesting for further investigation (see section 5.6.5).

The table in Appendix 7 shows the involvement of the research participants Heather, Maria and Marc with the #ELTchat network. Heather thanked Moderator1 for sharing teaching resources, which Moderator1 had collated from a previous chat. In

another tweet Heather commented on a tweet from Moderator1, in which Moderator1 announced that she was moderating sessions during the joint IATEFL/TESOL web conference sessions. In yet another tweet Heather wrote that she voted for the topic of the next chat, in which she would not be able to participate. However, Heather stated in this tweet that she intended to add to the slow burn. Maria participated in the weekly chat and Marc entered into a conversation about lesson plans. My own contribution to the #ELTchat network in that week consisted in asking #ELTchat actors to add to a language resource bank with most frequently misspelt words in examinations.

Appendix 7 also shows the influential positions of the Moderators within the #ELTchat network, measured by out-degree, in-degree and betweenness centrality (see Chapter 4.2.2 for an explanation of these metrics). Ranking these measurements in top ten lists revealed that Moderator1 was the most active actor (first place out-degree), was most referred to by other network actors (first place in-degree) and was central to conversations in the whole network (first place betweenness centrality). Maria was among the top ten network actors who were most referred to (in-degree: place 9) and was also among the network actors who contributed most to the network communications (out-degree: place 5). However, her importance as a bridge to other sub-groups was lower (betweenness centrality: place 17).

Although Heather is placed in one of the most active sub-groups of the network (G1 in Figure 5.7), she is not closely connected within this group. This is shown by her outward position in the sub-group G1 and by her overall metrics (in-degree: place 20, out-degree: place 20; betweenness centrality: place 32). Marc's position in the sub-group G8 (see upper right hand side in Figure 5.7) and his metrics (in-degree: place 109, out-degree: place 91, betweenness centrality: place 95) indicate that he is not part of the main communications in the #ELTchat network in this week. Similarly, my own

position in the network in sub-group G12 (adjoining sub-group G8 in Figure 5.7) shows that my tweet did not enter the main communications.

The network actor Teacherentrepreneur (pseudonym) is positioned in one of the most active sub-groups (G4). Even though his position in this sub-group is not central, he is still close to the influential network actor ELTchat. Teacherentrepreneur's metrics show that he is a very active actor, who is well connected within the network (out-degree: place 11; betweenness centrality: place 10). He was also one of the two network actors from the #ELTchat network who participated in the #LTHEchat network (see section 5.6.3). The other network actor, who participated in the #LTHEchat network, was ELT\_Teacher (pseudonym).

Close reading of the Twitter chat tweets of the week depicted in Figure 5.7 revealed the importance of whiteboards for language teaching. Moderator2 stated that she regarded a whiteboard as her favourite tool. Her opinion was supported by another chat participant. A third chat participant joined this conversation and stated that she would be interested in hearing how other language teachers use the whiteboard in their teaching. Moderator3 tweeted under the hashtag #ELTwhiteboard outside the one-hour chat, and Moderator2 re-directed a tweet about an interactive whiteboard by commenting on the tweet and adding the hashtags #ELTchat and #ELTwhiteboard. Language teachers' tweet conversations about whiteboards and the occurrence of the hashtag #ELTwhiteboard in different instances throughout the data collection time made the #ELTwhiteboard network interesting for further investigations (see section 5.6.4).

The importance of the #ELTchat moderators for the overall stability of the #ELTchat network, which could be seen from their positions in Figure 5.7, is also visible in Figure 5.8.

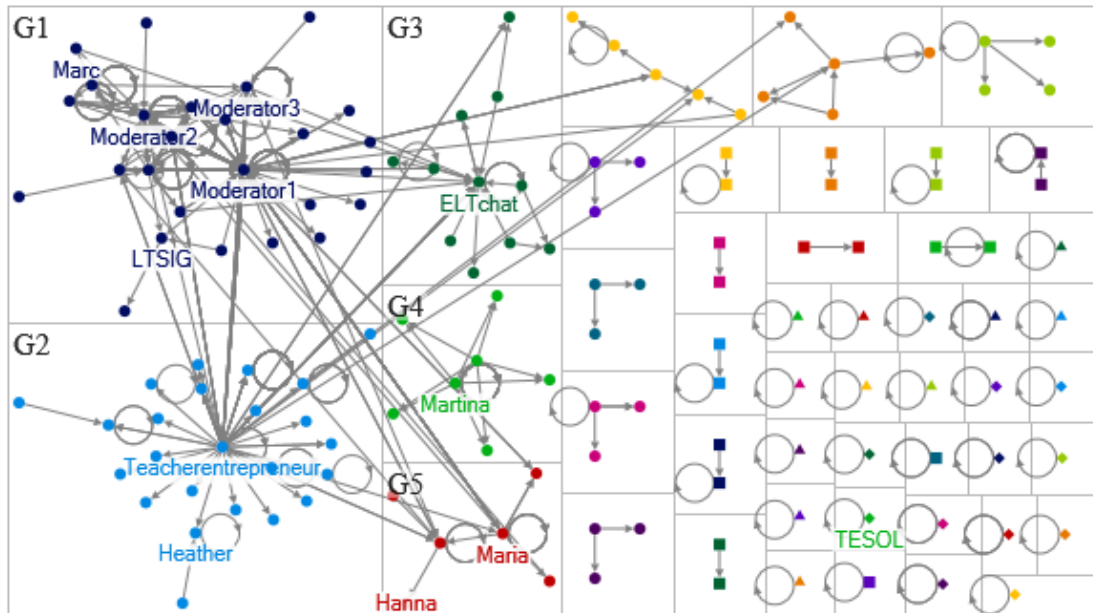
**Figure 5.8** #ELTchat (one week in Jan 2017)

Figure 5.8 shows the #ELTchat network during one week in January 2017. With 145 network actors and 497 tweets or retweets this network consists of more actors than the network in Figure 5.7, but there are fewer connections between the actors. The longest path between any two network actors is 6, and the average distance between network actors is 2.7. Compared to the network in Figure 5.7 the distance between any two networks actors within the complete network is shorter. However, on average it is more difficult for any two network actors to contact each other in this network. The reason for this is that the network in Figure 5.8 is more fragmented than the #ELTchat network in Figure 5.7, with fewer interactions between the sub-groups. The network density (0.0082) is much lower than the network density in Figure 5.7., and the number of sub-groups is much higher (there are 47 sub-groups in the network displayed in Figure 5.8).

Similar to the network in Figure 5.7 a small number of sub-groups account for most network activity in the network depicted in Figure 5.8. Five groups (G1-G5 in



Figure 5.8) account for over 50% percent of all network actors (74 actors) and 68% of the network activity (340 tweets and retweets). Among these five group G1 (box at the top left of Figure 5.8) alone comprises 26 network actors, including all three #ELTchat moderators. This sub-group accounts for 243 tweets and retweets, which is almost 49% of the total network activity.

All #ELTchat moderators and the #ELTchat Twitter account are among the most referred to actors, and they also belong to the most active and most central actors of this network (see metrics in Appendix 7). In contrast to the network shown in Figure 5.7, the network actor Teacherentrepreneur now occupies a central position in the second most active sub-group of the network, G2 (box at the bottom left in Figure 5.8). He is also the most active and the most central actor in this network, as displayed in Appendix 7 (first place out-degree, first place betweenness centrality). However, a closer look at Teacherentrepreneur's activities revealed that he did not take part in a one-hour chat or entered into conversations with other network actors but mainly retweeted other actors' tweets. The retweets did not focus on a particular topic or on specific network actors, and they included parts of Twitter conversations between other network actors. One of Teacherentrepreneur's tweets, which was sent after a series of retweets, referred to a lesson plan for teaching regular and irregular verbs on his own website.

Among Teacherentrepreneur's retweets was an exchange between Maria (positioned in sub-group G5 at the bottom of Figure 5.8) and another FLT about the use of enlarged cut-ups for making reading more collaborative. This conversation had taken place four days before the network activities depicted in Figure 5.8 and are therefore not listed in Maria's #ELTchat activities in Appendix 7. Her activities in the week displayed in Figure 5.8 include retweeting a call for voting on the next chat topic,

retweeting the summary of the chat from the previous week and taking part in the weekly Twitter chat.

The research participants Marc, Heather and Hanna also appear in the #ELTchat network activities. Marc (positioned in sub-group G1 in Figure 5.8) retweeted a call for #ELTchat topic proposals and a tweet from a Twitter chat about the importance for language teachers to revisit needs analysis. Heather (positioned in sub-group G2 at the bottom left of Figure 5.8) renewed her request for advice on favourite iPad apps which could be used in English Language Teaching. Her first tweet, which was among Teacherentrepreneur's retweets, did not yield any replies. Her second request was more successful and led to recommendations from two FLT's. Hanna (depicted in Figure 5.8 in sub-group G5) retweeted the summary of a Twitter chat without the #ELTchat hashtag and stated in her comment of this tweet that the chat summary was good and contained many ideas. The summary writer replied to Hanna's tweet using the #ELTchat hashtag and asked whether Hanna was teaching at the time the chat takes place. Hanna responded that she was not teaching but had very little time and many different classes. She said in her tweet that she intended to take part in the #ELTchat Twitter chat more often. In the following time Hanna took part in three Twitter chat, two of which were about helping students develop their productive and receptive English language skills.

It is apparent from Figure 5.8 that there are also connections with TESOL and the IATEFL Learning Technologies Special Interest Group (LTSIG). Moderator1 commented positively on a tweet by actor LTSIG (also positioned in G1) about a blog post on the LTSIG website. The blog post was about the use of technology for language teacher PD, and in her comment Moderator1 inserted the hashtag of another language teacher network. By contrast, the TESOL tweet, which announced an upcoming

webinar about digital tools and resources for assessment, did not receive any retweets and therefore did not enter the main conversations in this network. Therefore this actor appears in a group of isolates on the right hand side in Figure 5.8. Finally, my own contributions to this network consisted of a tweet about a call for papers for the EUROCALL 2017 conference and seven tweets, in which I invited FLT's to take part in my doctoral research. However, as shown by the star shape in the sub-group G4 (box in the centre of Figure 5.8), my attempts did not enter the mainstream conversations of this network.

### 5.6.2 #TBLTchat

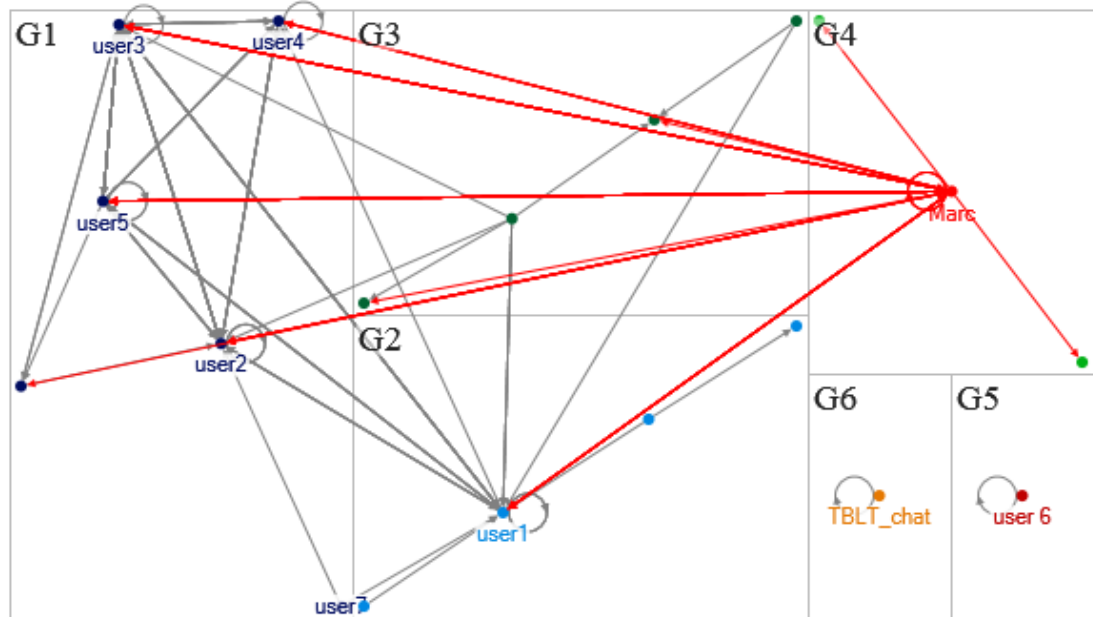
The hashtag #TBLTchat is used in tweets related to task-based language teaching (TBLT), but mainly refers to a Twitter chat of language teachers. Task-based language teaching seeks to “create contexts in which the learner’s natural language learning capacity can be nurtured” (Ellis, 2009, p. 222). Central to this approach is its emphasis on authentic use of the target language, based on the design of meaningful tasks, i.e. tasks that require the learner to make use of the target language to “achieve an outcome other than the use of language” (p. 223). In this way TBLT is distinctively different from teaching approaches which follow the Presentation-Production-Practice (PPP) paradigm. According to the British Council’s *Teaching English* website, PPP “is still a common framework to find in classes and in materials” (British Council, n.p.).

The Twitter chat #TBLTchat started as a spontaneous and situated activity. Marc reported in his interview that the beginnings of #TBLTchat originated in the question of a language teacher, who had asked whether there was a project-based learning or task-based learning chat on Twitter, “and there wasn’t, so that’s how it started up – and it’s pretty easy to do, and so I did it, and it worked .” (Marc, interview).

Following the creation of an own hashtag, Marc set up a separate Twitter account (@TBLTchat) and a dedicated website to manage the Twitter chat. Marc also moderated the one-hour chats, which have taken place infrequently since June 2016. As of May 2018 a total of nine chats had been conducted.

Similar to #ELTchat, the chat topics for #TBLTchat are voted on by network actors. Another similarity can be found in the adoption of the ‘slow burn’ function. As explained in the previous section, this chat feature provides language teachers with the opportunity to contribute to a particular chat topic, even if they cannot take part in the one-hour moderated chat. During the data collection time for #TBLTchat only one chat with nine participants, including Marc and the official Twitter account, took place.

Figure 5.9 shows the #TBLTchat network during the three days in which most network activity occurred. For #TBLTchat 191 tweets and retweets were collected in a four-week period, of which 166 occurred during the three-day period depicted in Figure 5.9.

**Figure 5.9** #TBLTchat network visualisation

The whole network comprises 19 network actors and 166 tweets and retweets, but the visualisation focuses on the connections between #TBLTchat Twitter chat participants. With a network diameter of 4 and an average path length of 1.89 this network is much smaller than the networks depicted in Figures 5.7 and 5.8. However, in smaller networks the actors are often better connected with each other than in larger networks. This is visible in the #TBLTchat network depicted in Figure 5.9, and it is also visible from the network density of 0.14., which is much higher than the density of either of the networks shown in Figures 5.7 and 5.8.

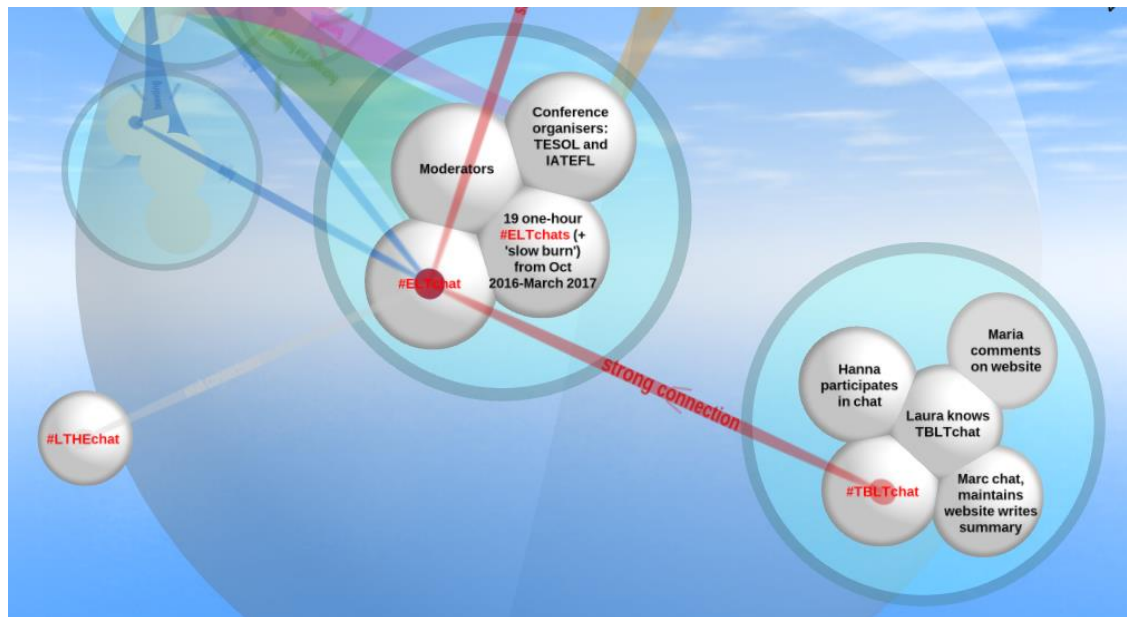
The chat participants are displayed as user1 to user7. Marc's tweets and retweets are depicted with thicker lines, showing that most network activity was performed by him during the three days. Marc's networks metrics emphasise his central position in the network (out-degree: first place; in-degree: second place, betweenness centrality: first place). This is in line with the pattern displayed in #ELTchat network, where the overall network activity relied heavily on the input from the three moderators.

User1, user3 and user5 are influential actors, because most of the conversations go through these actors. User4 and user7 are involved in the conversations, whereas user6 is isolated, as is the official #TBLTchat Twitter account.

A comparison of network actors in #TBLTchat and #ELTchat and a close reading of network tweets revealed that all chat participants of #TBLTchat also contributed to the #ELTchat network between October 2016 and March 2017 through tweets, retweets or through their participation in #ELTchat Twitter chats. This means that a strong connection existed between the #TBLTchat and the #ELTchat networks. However, the strength of the connection was not visible from the hashtag analysis, with the hashtag #ELTchat only showing once in the #TBLTchat network, and the hashtag #TBLTchat only showing four times in the #ELTchat network during the entire data collection time.

Figure 5.10 visualises the strong connection between the two Twitter networks in a thick line that links the #ELTchat bubble in the centre of the illustration with the #TBLTchat bubble on the lower right hand side. An enlarged visualisation of Figure 5.10 is provided in Appendix 16.

**Figure 5.10** Network connections between #ELTchat and #TBLTchat



The #TBLTchat bubble contains the connections with the research participants, which showed through the relational cross-reading of data. In her interview Laura stated that Twitter had definitely helped her increase her knowledge of different teaching methods and provided TBLT as an example. She confirmed that she knew of the #TBLTchat Twitter chat but had not participated in a chat. Maria commented on the #TBLTchat website, expressing her wish to read the summary of a particular chat. In another instance she retweeted Marc's call for a chat topic vote. Hanna took part in a chat and engaged in several Twitter conversations with Marc about TBLT. These tweet conversations showed that TBLT perspectives were embedded in both Hanna's and Marc's teaching practices.

Marc stated in his interview that he felt “strongly about task-based learning” (Marc, interview) and that he regarded TBLT

“as something that solves my problems with teach-learn materials or with deep-learning materials, or getting learners to rethink what it was that was taught or what they learnt in the classroom.” (Marc, interview).

In particular, Marc emphasised the advantage of TBLT over textbook exercises:

“If there is a clear task – not being linked to a textbook page – there is less chance of the students rushing through and saying they’re finished, based on lines they have read or filled-in blanks or things like that.” (Marc, interview).

### **5.6.3 #LTHEchat**

The hashtag #LTHEchat (Learning and Teaching in Higher Education chat) has been used by a network of education professionals interested in sharing experience and knowledge on teaching and learning in higher education since 2014 (Vasant, S., Nerantzi, C., Beckingham, S., Lewin-Jones, J., Sellers, R., Turner, S., & Withnell, N. V., 2018). The #LTHEchat network is an opportunity for educators “to share their work and receive feedback within a wide and open community of professionals” (Beckingham & Nerantzi, 2016, n.p.)

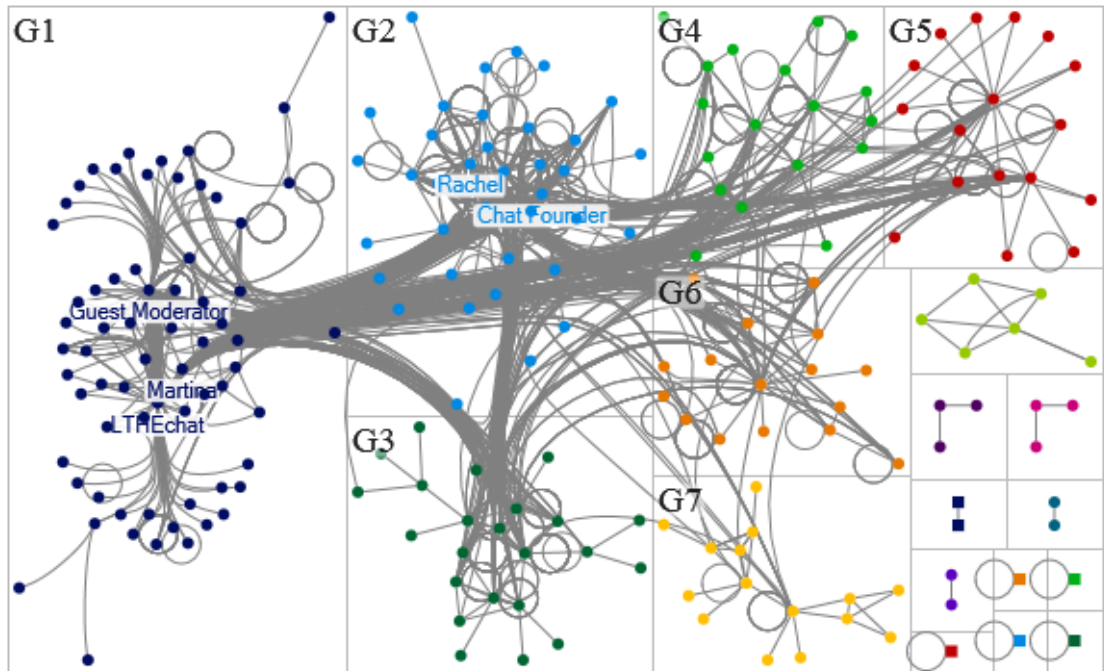
This network regularly conducts a one-hour Twitter chat and possesses its own Twitter account (@LTHEchat). Some Twitter chats are jointly organised with other Twitter networks, such as #HE\_chat (Higher Education chat). The weekly chat topic is suggested by a guest moderator. The guest moderator may be a regular contributor to #LTHEchat or it may be someone who has been invited by the steering committee to



facilitate a chat. The tasks of the guest moderator include writing a short introductory text for the #LTHEchat website (<https://lthechat.com/about/>) and deciding on the questions, which are used to guide the conversations in the Twitter chat. #LTHEchat is run by a steering committee and a pool of volunteers, who are responsible for the chat organisation for a period of three months. Chat participants can display a badge on their blog or website to show that they are regular chat contributors. Guest moderators can claim a 'Guest Badge', and organising team members can claim an 'Organising Team Member Badge'.

Chat tweets are usually recorded and archived, and for some chats a Social Network Analysis, which shows the participants' interactions, is available. As of mid-October 2018, 127 chat summaries were publicly visible. Until May 2018 the Twitter chats were summarised by using the software Storify. Following the sale of Storify, the chats are now archived on the Internet platform Wakelet (<https://wakelet.com/>). During the data collection time, four one-hour Twitter chats took place (see Appendix 8). The research participant Rachel took part in all of them (see Appendix 9). A time series analysis showed a similar network activity pattern to the pattern observed in the #ELTchat and the #TBLTchat networks, i.e. most #LTHEchat network activity occurred on the days when one-hour chats took place.

Rachel was an active contributor in each of the four chats, as visible from the network metrics in Appendix 9. In two chats she was among the 20 most referred to, most active and most central chat participants. Figure 5.11, which illustrates one week network activity of #LTHEchat in October 2016, shows Rachel in the sub-group with the highest network activity (G2, at the top of Figure 5.11).

**Figure 5.11** #LTHEchat (one week in Oct 2016)

The network consists of 216 network actors and 1,580 tweets and retweets.

Although the #LTHEchat network depicted in Figure 5.11 is a larger network than the #ELTchat networks shown in section 5.6.1, both in terms of the number of actors and in terms of the number of interactions, its diameter (7) and the network density (0.014) are similar to the #ELTchat network shown in Figure 5.7.

However, the visualisation in Figure 5.11 shows that the sub-groups are better connected and that there are fewer isolates than in the network shown in Figures 5.7 and 5.8. Overall, the fragmented #LTHEchat network consists of 18 sub-groups, with four sub-groups (G1-G4) comprising over 67% of the network actors and accounting for over 47% of the network activity. Most network actors are found in sub-group G1 (box on the left in Figure 5.11), among them the Guest Moderator and #LTHEchat's Twitter account. These actors occupy central positions in the network, as their in-degree, out-degree and betweenness centrality metrics show (see Appendix 9). Both network actors are among the top three actors in each category. My own network participation also

shows in G1, but I am not central to the network conversations, as visible from the metrics in Appendix 9.

Apart from the #LTHEchat Twitter account and the Guest Moderator (pseudonym), the Chat Founder (pseudonym) shows as an influential actor in the network throughout the four-week data collection period. The Chat Founder is consistently among the top 20 most referred to actors, ranks among the top 10 most active actors in three weeks and can be found among the top 20 most central actors in three weeks. The network actors Teacherentrepreneur (abbreviated T.preneur in Appendix 9), who showed in the #ELTchat networks (see Chapter 5.6.1), and ELT\_Teacher appeared in the #LTHEchat network in two of the four weeks (see Appendix 9). In one week Teacherentrepreneur's contribution consisted of a retweet of a previous #LTHEchat summary, and in another week ELT\_Teacher asked about the #LTHEchat Twitter chat topic. However, neither Teacherentrepreneur nor ELT\_Teacher were active in the #LTHEchat network in the week depicted in Figure 5.11.

For Rachel, taking part in #LTHEchat Twitter chats was very important. In one of the chats she tweeted that participating in #LTHEchat Twitter chats helped her to understand and manage Twitter. In her interview Rachel stated that she was "upset" (Rachel, interview) because she would not be able to participate in an #LTHEchat Twitter chat for some time, as she was going to teach a class for a colleague. Rachel explained in her interview that she felt that participating in Twitter chats had gradually enabled her to become quicker and more confident in tweeting and to contribute more to the chats. Participating in Twitter chats at work was not possible for Rachel, since her co-workers did not understand that Rachel was pursuing a professional development activity (see section 5.2).

In the Twitter chats Rachel also learnt about new tools which could be used for teaching and learning. In a chat tweet she referred to the online poster wall Padlet, and said in the interview that she had been “inspired by a previous #LTThechat” (Rachel, interview) to experiment with this tool for student feedback. She employed both Padlet and paper for her student feedback and saw a difference, because the students, who posted a message on the Padlet, could see what the other students had written. In the interview Rachel explained that she was considering using Padlet for other classroom activities, such as introductions. However, she was also critical of the use of technology in the classroom: “It’s always that kind of borderline: Are you using the technology for the technology’s sake, or have you got a real pedagogical purpose?” (Rachel, interview).

In one Twitter chat the line between Rachel’s professional practices as a language teacher and her practices in another professional capacity became blurred. In this chat Rachel reported her own experience with student feedback from the perspective of a part-time doctoral student.

#### **5.6.4 #ELTwhiteboard**

#ELTwhiteboard featured as a salient hashtag in situational mappings, as it occurred in tweets of the #ELTchat Twitter network throughout the data collection period and in tweets or retweets from Hanna, Marc and Rachel. The hashtag #ELTwhiteboard showed in tweets from language teachers who tweeted pictures of whiteboards (and occasionally blackboards) that they used in their teaching. Tweets with the hashtag #ELTwhiteboard can be seen as a way to open up face-to-face classrooms to a wider network of language teachers, showcasing teaching practice and providing an opportunity for discussion.

Figure 5.3 (see section 5.6.) shows the connections between the #ELTwhiteboard hashtag network and the research participants in a bubble on the left hand side. Heather reported in her interview that she had seen language teachers posting whiteboard pictures on Twitter but that she herself did not use whiteboards in her teaching. Maria had a tweet conversation about a #ELTwhiteboard picture and talked about the use of whiteboard pictures for teacher learning in her interview. Marc retweeted whiteboard pictures and blogged about one of his own whiteboard pictures. Rachel tweeted a whiteboard picture of her own classroom. Hanna tweeted a classroom picture with a hashtag variation of #ELTwhiteboard. For data privacy reasons this hashtag is not revealed, as Hanna's Twitter account could be traced through this hashtag.

Relational cross-reading of data revealed that the working(s) of #ELTwhiteboard produced becomings that pertained to both teaching practices and teacher subjectivities in different and sometimes unpredictable ways. Hanna tweeted a classroom picture from one of her Czech classes, asking viewers of her tweet to guess the topic of the whiteboard shown in the picture. In her interview Hanna explained that the hashtag she had used in her tweet existed before and that she thought it was good to use it to address an international audience:

“So I created this Czech language whiteboard and I occasionally post a photo of it. And lots of people are really into it and they guess what is on the board and they... they just think it's real fun. So somehow Czech is kind of part of the group now, because I'm part of the group.” (Hanna, interview).

Hanna's tweet was replied to by seven language teachers, leading to different one-to-one conversations with Hanna about the content of the whiteboard. In these tweet conversations Hanna enacted a teacher role, praising and encouraging her language teacher 'students' and providing them with feedback with regard to their replies. In one tweet conversation a 'student' asked whether Hanna was prepared to teach her Czech online, which was a surprise for Hanna:

"No, I was just taken....it took me back, I was surprised. There were two people who reacted, there was another man, who's based in Prague, a very important person, it seems, and I was, I was quite shocked. That's not why I do this. See, I do it for the fun, for the professional side, but I don't advertise myself. So I was thinking 'Oh, my God' this is..."  
(Hanna, interview).

At the time Hanna this tweet conversation took place Hanna was not working as an online teacher, and in her interview she explained that was not certain whether she would be comfortable with teaching online.

Rachel reported in the interview that she found some of the #ELTwhiteboard tweets interesting for the ways in which the whiteboards were organised. However, she had noticed in some #ELTwhiteboard tweets that the whiteboards usually showed the teacher's handwriting. Rachel tweeted a picture of her own classroom whiteboard with the teacher's and students' writing, because she wanted to contribute something that her students had created: "The whiteboard isn't just my space; it belongs to the whole of the classroom." (Rachel, interview). Her class was an English for Academic Purposes (ESP) module with international students. The lesson was about synonyms, and the task shown in Rachel's tweet was designed to help students develop their own writing.

Marc retweeted a #ELTwhiteboard tweet

“because I thought it might be useful for other people who are following me, who might not have seen it, especially like...some of the newer teachers or some of my newer followers who might not be following @user [Marc mentions the name of #ELTchat Moderator3].” (Marc, interview)

Marc explained in his interview that he thought posting whiteboard pictures with the #ELTwhiteboard hashtag “gives quite a bit of a moral support” (Marc, interview), and that he compared other language teachers’ whiteboard pictures to his own teaching:

“You get to compare.. you get to compare, and then you get to see someone’s best ideas or other good ideas and things that might work in the classroom from the teachers’ whiteboards – and I know that in the past my whiteboards were fairly cluttered – or...you just get other ideas and ways to work with language” (Marc, interview).

During the data collection period Marc wrote a blog post, which explained a whiteboard picture he had used in one of his Business English classes. In his blog post Marc answered questions about his whiteboard that he had received from Hanna and #ELTchat Moderator3 through tweets.

Maria stated in her interview that the hashtag #ELTwhiteboard was started by #ELTchat Moderator3 and that sharing classroom pictures can be useful. However, she was critical of some whiteboard pictures she had seen in tweets:

“You can share all your whiteboards but if that’s not what an effective whiteboard use is, you shouldn’t share it ‘cause that’s not professional

development. I've seen ELTwhiteboards that for my DELTA would have failed my lesson.” (Maria, interview)

Maria then elaborated:

“Because part of a the professional development in a diploma like DELTA, or even in an MA in TESOL, when you are observed or you are assessed, you have to use the whiteboard, or any tools, including interactive whiteboard, correctly and effectively for the learning of your students. So showing an ELTwhiteboard with a happy face and a lot of words in random order, that doesn't help. It shows that there has been some teaching there, but it doesn't show that there has been some reflected and planned usage...use of whiteboards, and it doesn't show that there has been learning.“ (Maria, interview)

Maria also questioned Moderator3's reasons for promoting the #ELTwhiteboard hashtag, because this moderator “was writing kind of an article or...preparing a talk for a local teachers' meeting. So that had an objective.” (Maria, interview). In a tweet with the hashtag #ELTchat Moderator3 stated that he mentioned #TBLTchat, #ELTchat and some FLTs, such as Marc, in his presentation about #ELTwhiteboard at a language teacher conference. A closer look at Moderator3' blog, which showed his presentation and tweet examples, confirmed this statement.

### **5.6.5 #webconf2016**

The hashtag #webconf2016 emerged as a salient hashtag through relational cross-reading of data from the #ELTchat network tweets and participants' tweets. The hashtag #webconf2016 was used in tweets and retweets which pertained to the joint 2016 IATEFL / TESOL online conference. It was not the only hashtag which referred



to this conference; other hashtags included #webconf and #webconf16. However, #webconf2016 yielded most tweets, indicating that this hashtag was mainly used during this conference.

The Joint IATEFL/TESOL Web Conference (<http://www.tesol.org/events-landing-page/2016/11/19/default-calendar/joint-iatefl-tesol-web-conference> ) was a three-day fully online conference. This conference was free of charge but required previous registration. It was conducted via webinars, which were accompanied by blog posts, and tweets. Some conference activity also occurred on Facebook. However, an analysis of rhizomatic movements on Facebook is beyond this research. The IATEFL/TESOL Web Conference 2016 was titled ‘50 years of English Language Teaching Professional Development’, and each conference day featured a different topic: World Englishes (17 November 2016), Teacher Identity (18 November) and Professional Development Through Teacher Associations (19 November). The conference organisers used their official Twitter accounts to promote the conference and to recruit conference participants. Conference promotion also occurred through the #ELTchat network, even after the start of the conference, as apparent from the tweet in Figure 5.12:

**Figure 5.12** #ELTchat tweet promoting IATEFL/TESOL Web Conference



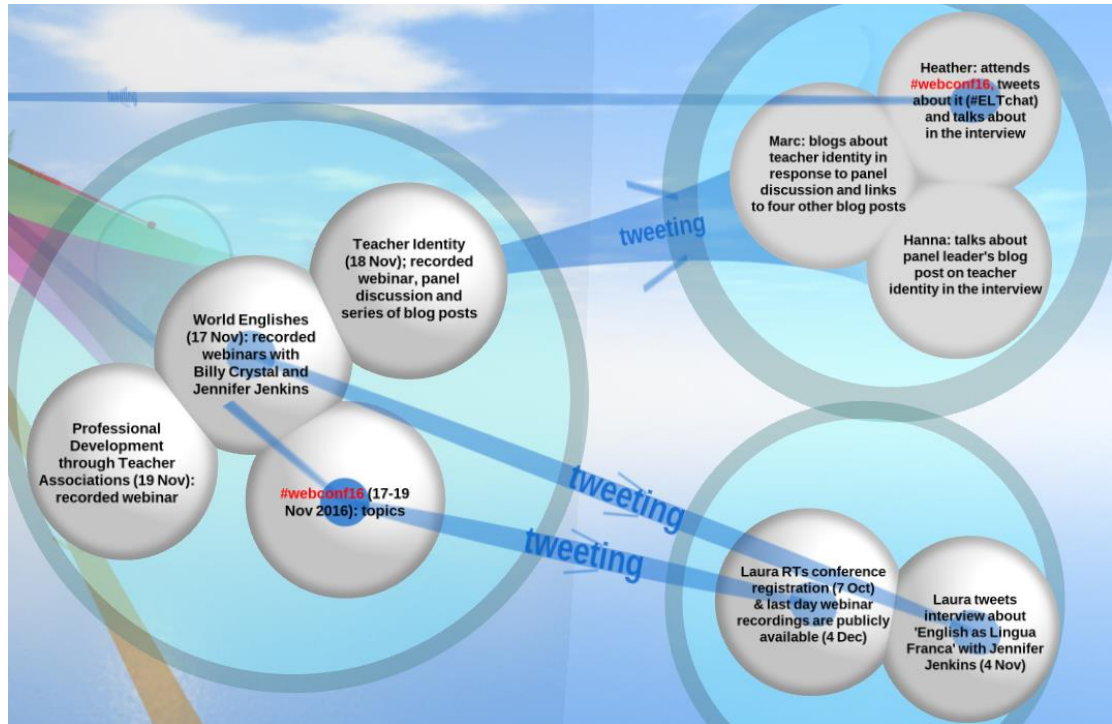
The entanglement between the #webconf2016 network and the #ELTchat network also showed through #ELTchat Moderator1's involvement in the web conference (see section 5.6.1).

All webinars were recorded and publicly available until December 2016. Afterwards, the recordings were only available to TESOL and IATEFL members. The importance of (free) webinars for FLT's PD showed in participants' replies to the questionnaire: seven participants stated that they use webinar and online courses for their PD from the range of informal PD opportunities available to them.

All three conference topics appeared in tweets in the #ELTchat network during the three conference days, and continued to appear in this network and in four research participants' tweets, retweets and blog posts until mid-December 2016. Figure 5.13 shows a situational mapping of the rhizomatic movements of the hashtag assemblage #webconf2016 with regard to connections with the research participants. A larger version of Figure 5.13 is provided in Appendix 17. It is important to note that foregrounding particular elements of a situation and their relations means that other elements and their relations move to the background. However, these elements and

their relations retain their capability to connect with the elements and relations shown in Figure 5.13, and they may have connected within other tweet and hashtag assemblages.

**Figure 5.13** Participants' connections with the web conference #webconf2016



This situational mapping shows the three topics of the web conference in the bubble on the left in Figure 5.13. The bubble at the top right contains the multiple connections between the web conference and the research participants Heather, Marc and Hanna, which were visible in their tweets. Laura is depicted in a separate bubble; her connections were restricted to retweeting TESOL's conference announcement and an interview with Jennifer Jenkins about English as a Lingua Franca. It should be noted that not all connections between #webconf2016 and the participants contained the conference hashtag.

The connection between the #webconf2016 network and the #ELTchat network is depicted as lines in the background on the left in Figure 5.13. As mentioned above, #ELTchat Moderator1 stated her involvement in the web conference at the end of a

Twitter chat. She also promoted the web conference in her tweets, thereby strengthening the connection between the #ELTchat network and #webconf2016. The panel on teacher identity was moderated by a language teacher who was also an active participant in the #ELTchat network. In his tweets this language teacher invited other language teachers to join the panel by blogging their thoughts about teacher identity.

The situational mappings helped uncover the entanglements between the web conference #webconf2016, the #ELTchat network and the research participants. In their tweeting activities the research participants Heather, Marc, Hanna and Laura connected with #webconf2016 in different ways and helped disseminate its contents. Two participants also contributed to the web conference in the form of tweets (Hanna) and a blog post (Marc).

Heather took part in the web conference “out of interest, rather than for any practical use” (Heather, interview) with regard to her teaching. She tweeted about her conference experience (also known as ‘conference back-channelling’) and her tweets connected #webconf2016 and the #ELTchat network through the inclusion of both hashtags. In one instance she entered into a tweet conversation with another language teacher who was tweeting about the conference. Their short exchange pertained to the use of emojis as a Lingua Franca in language teaching and learning. Emojis are visual representations, which are used to display emotions, objects, or even actions in texts. In her interview Heather explained that she was replying to this language teacher because she was following the #webconf2016 hashtag while watching Jennifer Jenkins’ web conference talk about English as a Lingua Franca. In one tweet reply Heather stated that she found it interesting to see people communicate with emojis. Prompted by this tweet, Heather explained in her interview that she had noticed that some of her students “like using emojis, because English is not their first language and they find it easier to

use emojis than to write English” (Heather, interview). Other students in her class thought that it was “not the same, because you can’t say exactly what you want to say” (Heather, interview).

Marc retweeted the request for blog posts on teacher identity and wrote his own blog post, following a request by the language teacher who moderated the teacher identity panel. In his blog post Marc briefly outlined his personal background, his teaching background and stated his teaching philosophy. Marc also retweeted other teacher’s blog posts, who contributed to this panel, and linked to three other blog contributions in his post. One of these contributions was written by #ELTchat Moderator3. Links to Marc’s blog post and other teacher’s blog posts were also posted on the blog of the language teacher who moderated the teacher identity panel.

Hanna talked about the teacher identity blog posts during her interview and mentioned an initiative on Twitter, which inspired her to reflect about her own identity:

“Recently there’s been this initiative where people write about, teachers write about their identities, blog posts about their identity. And it got me thinking a lot about...something I’d never thought about... about identity, teaching identities and what forms you.” (Hanna, interview)

She did not mention the web conference, the conference hashtag or the teacher identity panel, but referred to the moderator of the teacher identity panel:

“Hmh, yeah, it came from [panel moderator’s name]... He recently wrote a blog post about, yeah, his identity as a teacher, and then many others responded to that, writing their own blog posts as well.” (Hanna, interview).

Asked in the interview why she had not contributed to this series of blog posts, Hanna replied that she did not have a blog and felt that writing about teacher identity was very personal.

### **5.6.6 The workings of Freelance Language Teachers' Professional Development**

In this section and in the next I will revisit the research questions which guided this study, starting with the first research question (RQ1): How does freelance language teachers' professional development *on...and with...and through* Twitter work?

The data vignettes presented in my thesis showed that FLT's' Twitter-based PD involves a situated entanglement of human and non-human elements, which include FLT's' teaching and tweeting practices. Tweet and hashtag assemblages move rhizomatically across and beyond Twitter, sometimes through the 'strength of weak ties' (Granovetter, 1973), i.e. through network actors who work as bridges between networks. Examples from my research include the actors Teacherentrepreneur and ELT\_Teacher (linking the networks #ELTchat and #LTHEchat) and Heather (connecting the networks #ELTchat and #webconf2016). While #ELTchat's Moderator1 and Moderator 3 also function as network links, these links were much more robust, due to their personal involvements in the #webconf2016 conference (Moderator1) and the #ELTwhiteboard network (Moderator3).

Some research participants associated PD on Twitter with notions of democracy and equality: "I guess the top thing is we're all on the same level. There are no names, titles, and if you're friendly polite and honest, you get to talk to some amazing people." (Hanna, questionnaire). On the other hand, notions of 'community' were also present: "I feel like I'm part of a bigger whole" (C, questionnaire), "part of a larger community (H., questionnaire). The issue of trust also played a role in this context: "It is possible

to create a group of people who you respect and trust in terms of professional skills and abilities and to learn from them.” (L., questionnaire)

However, social network analyses of the #LTHEchat and the #ELTchat network tweets showed a different picture with regard to equal participation. A comparison of the tweeting activity in both networks (see Appendix 7 and Appendix 9) over a period of four months (#ELTchat) and four weeks (#LTHEchat) weeks showed that a small group of network actors accounted for most tweets and retweets (out-degree) and were mostly referred to by other Twitter users (in-degree). This confirms the findings from a previous study, carried out by Rehm and Notten (2016): “Individual actors engage into creating and sustaining interpersonal ties. As a result, they are able to attain more central positions in the network. This in turn provides them with access to more and more diverse sources of information” (p. 221).

As argued in Chapter 4.4, Twitter metrics, such as the number of tweets and the number of followers constitute valuable information for Twitter and co-determine algorithmic workings. Appendix 10 shows that the number of tweets increased for each of the six research participants, whose tweets and retweets were collected, albeit at a different rate. Whereas Heather only sent 7 tweets in four weeks, Marc sent 491 tweets. The number of tweets and retweets per participant ranged from 17 (Heather) to 890 (Marc), as visible in Appendix 1. There was also a great difference in the number of followings and followers between participants, ranging from 72 followings/87 followers (Maria) to 2,300 followings/12,255 followers (Laura). Since visibility is connected to the number of followers, Maria’s tweets were much less visible on Twitter than Laura’s.

A higher tweet visibility facilitates the acquisition of new followers through one’s tweets, not least because tweet visibility is re-worked as tweet or hashtag

recommendations through Twitter's algorithmic workings. These recommendations work with Twitter user recommendations, i.e. Twitter users recommend following other Twitter users, thereby attributing 'importance' to individual Twitter users.

Simultaneously, the number of followers is regarded as an indicator for a person's influence or 'importance' on Twitter, leading to more followers and perpetuating the connection between follower number and presumed importance. The quantified 'importance' in turn feeds into Internet services that connect with Twitter's API, which amplifies the effect beyond Twitter.

Comparing the number of followings/followers per participant shows a roughly equal increase (see Appendix 10), with the notable exceptions of Hanna and Laura. The increase in the number of Hanna's followers (+25) is about double the increase in her own followings (+11), which could be attributed to her tweeting activity (410 tweets and retweets) during that time. However, the steep increase in the number of Laura's followers (+1,531) is puzzling. Asked about the increase in the number of her followers over a short period of time, Laura revealed in her interview that a social media expert helped her with her Twitter account, although she could not explain what exactly the social media expert had done.

Power relations in networks operate as forces in tweet and hashtag assemblages and influence their rhizomatic movement. In her interview Maria criticised the use of retweets as endorsements to promote content or to promote other Twitter users, who in turn may bring followers to the person who retweeted. Conversely, relational cross-reading of data showed that research participants acted differently towards network actors, who were perceived to be 'experts' or who were central to a particular network. An example is provided by Marc, who tweeted: "@user And you should definitely follow [name]. Apart from being a nice hombre he's also very knowledgeable yet



humble.” (Marc, tweet). Rachel stated in her interview that she had read and thought about ‘filter bubbles’, i.e. “that we follow the same kind of people” (Rachel, interview) and that this Twitter practice may lead to closed networks. She then reported about a newspaper article which suggested “swapping political opinions” (Rachel, interview) with social media user who have a different opinion from one’s own, in order to work against the emergence of such ‘filter bubbles’.

### **5.6.7 On becomings**

This section addresses the second research question (RQ2) that guided this study: What does freelance language teachers’ professional development on...*and* with...*and* through Twitter produce?

Tweet and hashtag assemblages are capable of producing becomings that pertain to both non-humans and humans alike. Becomings are transitionings, i.e. they are never final but always happening in-between. This is also true for (teaching) resources, which are produced through and within Twitter chats, such as chat transcripts, chat summaries, Padlets or Google documents. These becomings have a material existence, but they are open processes that continuously evolve into something different by connecting with thought and action. #ELTchat Moderator1 spontaneously created a Padlet poster wall with chat participants’ favourite ELT teaching tools during a chat and shared the link in a tweet assemblage with the #ELTchat hashtag. This constituted a new opening for further contributions to the collection of teaching tools by chat participants and non-participants alike. A language teacher who had not taken part in the chat contributed a post on this wall with a link to an article on the role of mobile phones in the classroom, which he had co-authored. This post functioned as a self-promotion but also provided a new opportunity for connecting with thought about teaching practice. Heather commented on Moderator1’s tweet (see section 5.6.1) which contained the link to the

Padlet wall, thereby connecting the tweet assemblage to her followers and simultaneously strengthening the dissemination of the link in the #ELTchat network.

Instances of the entanglement between FLT's professional practices and becomings associated with Twitter chats could be observed through relational cross-reading of data. Hanna stated in her interview that she learnt about the software Quizlet in a #ELTchat Twitter chat (see section 5.6.1). In a #ELTchat Twitter chat Hanna's teaching experience with Quizlet entered into conversations about helping students to learn new vocabulary and was reported in the chat summary, which was written by Maria. The summary, which also contains Maria's own experience with technology that supports students' vocabulary learning, was Maria's first chat summary. Maria's chat summary provided a detailed and well-structured account of the chat, showing that the discussions ranged from the importance of recording vocabulary for language learner autonomy to teaching strategies, such as the use of cards, portfolios or even songs (with young learners), and the use of software to help apply these strategies in language teaching. Maria's chat summary was praised in tweet assemblages and retweeted to such a degree that it showed in the #ELTchat network analysis of word pairs that co-occurred most frequently two weeks after the chat. In a tweet Maria referred to her experience of writing a chat summary and stated that this might start her to blog about her teaching. Even though further relational cross-reading of data did not show whether becoming-blogger actualised, becoming-chat-summary-writer worked with the elements of connectivity and popularity within the Twitter *machine* in making a new subject position available to Maria.

The chat summaries also function as a "useful" (Heather, interview) resource and substitute for the chat tweets, because "if you just follow #ELTchat chat and look at the chat tweets, it's a bit overwhelming, especially if you are not involved in the

conversations” (Heather, interview). The summaries and the Padlet walls as products of #ELTchat Twitter chats are assemblages in their own right and provide new opportunities for (re-)connections through commenting (on the #ELTchat summaries web page) and through contributing content (on the Padlet).

Within #TBLTchat becomingings pertain both to teaching practices (see 5.6.2) and to subjectivities. Becoming-chat-organiser made new subject positions available for Marc, such as enacting ideas of democratic and experimental teacher PD:

“I see #TBLTchat, or what I imagine it as being [...] a lot more...kind of grassroots: teachers talking to teachers and organising with teachers, discussing things, talking about practices. And it might be a bit more... a bit more...evaluating, and a pragmatic reflection, picking and choosing and rejecting what works in this context and what doesn’t work. Or what you think might be a good idea but perhaps doesn’t work in your context, but you give it a little try, just in case” (Marc, interview).

Marc’s goal was “to become a participant rather than a leader” (Marc, interview). However, sustaining the Twitter chat conflicted with Marc’s teaching commitments: “We were a bit overambitious. We started with a wiki that we kept for ourselves and a Padlet, and basically the last chats took me over a month to get that going ‘cause I was so busy” (Marc, interview). The existence of the #TBLTchat network is further endangered by its size: since the #TBLTchat network is a much smaller network than the #ELTchat and the #LTHEchat networks (see section 5.6.2), its existence relies almost entirely on the tweets of the chat-organiser, i.e. on Marc’s tweets.

For Rachel, the #LTHEchat tweet and hashtag assemblages provided opportunities to connect with her professional practices, both as a language teacher and as a doctoral researcher (see section 5.6.3) and produced new subjectivities. After the data collection time Rachel became a member of the #LTHEchat organising group and helped organise #LTHEchat Twitter chats for a period of three months. She also co-authored a blog post about LTHEchat as a community of practice.

After summarising the ‘findings’ from my research with regard to the two research questions, I will turn to my own researcher-becomings and report the challenges and opportunities of the Deleuzo-Guattarian inspired research approach in the final two sections of this chapter.

### **5.7 Researcher becomings (researcher development)**

As a German project manager, a teacher educator for the European Centre for Modern Languages (ECML) and a part-time doctoral researcher I am ‘always in-between’: I am constantly in-between languages and cultures (German and English), in-between work (as project manager and in a team who works for the ECML) and in-between research (doctoral research and the research inspired by the ECML projects I have been involved in). In my use of Twitter there are no strict boundaries between tweets for research, tweets for project work and tweets for ‘other’ purposes. Indeed, such a distinction would be quite senseless from a Deleuzo-Guattarian perspective.

In-betweenness is not a status, it is continuous transitioning (Bangou, 2012), a multiplicity of rhizomatic movements between different life-work-research assemblages. Out of and within these assemblages arises potential for becoming-other (Semetsky, 2003). Becomings are unpredictable, ‘untimely’ (Waterhouse, 2012) and unfinished, and they are always transformative. Or, as May (2003) contended,

becomings “are offerings, offerings of ways to think, and ultimately to act, in a world that oppresses us with its identities.” (p. 151).

Thinking-doing doctoral research within a Deleuzo-Guattarian inspired research framework has been an ongoing experimentation without beginning or end. Leaving the (relatively) secure ground of phenomenological research meant having to question everything and to navigate every step of the research process without knowing where it would take me. At the same time becoming a ‘rhizome researcher’ (Clarke & Parsons, 2013) and experimenting freely with new ways to produce thinking, such as developing a series of presentations to explore the research territory in new ways (Chapter 4.5) or creating the approach of relational cross-reading of data (Chapter 4.5.3) was exciting. These experimentations have sustained my enthusiasm for research and offered potential for *becoming*. Some potential has already actualised, such as becoming-Twitter-course-developer and becoming-writer.

Becoming-Twitter-course-developer happened in-between work and research assemblages. The first ideas were developed during the German *Open Educational Resources (OER) Festival (#OERde17)* conference in December 2017, which I visited in my capacity as project manager of a German online portal with study preparation courses for ‘non-traditional’ students (Thelen & Emke, 2015). Within face-to-face and Twitter conversations with a Swiss academic during the conference the initial conceptualisation for an online course was jointly created. The aim was to provide educators interested in exploring the potential of Twitter for their PD with a structured, flexible, cost-free course, which also offered opportunities to connect with other educators across educational sectors.

A German academic and a freelance education training professional from Switzerland picked up on the initial Twitter conversations and subsequently joined the course developer team. During the ensuing discussions, which took place via videoconferencing and a shared Google document, the four women decided to jointly design and facilitate a three-week course offering called *Drei Wochen Twitter* (translation: Three weeks of Twitter) (<https://blogs.uni-bremen.de/3wot/>). *Drei Wochen Twitter* (#dreiwot) was a German open and fully online Twitter course, which took place from 22 May to 11 June 2018.

In a truly Open Educational Resources inspired fashion *Drei Wochen Twitter* built on an existing English online course called *10 Days of Twitter* (#10DoT) and on two German iterations, which had been developed by each of the two Swiss team members independently. Since 10 Days of Twitter and the two German courses were licensed under Creative Commons licenses which allow non-commercial reuse and adaptation of the original materials, building on these materials and ideas was possible.

In a Deleuzo-Guattarian sense *Drei Wochen Twitter* is not an iteration, but can be regarded as becomings. Although it was based on the ideas and materials of previous online courses and course facilitations, each ‘variation’ is not a return to the same but *different* in that each course consisted of distinct but changing and moving assemblages of humans and non-humans, which had different capabilities to produce *becoming*. As mentioned before, Deleuzo-Guattarian philosophy is a constant thinking-doing process, and, as such, transcends the theory-practice dichotomy. So, in becoming-Twitter-course-developer new thought has been produced, which I intend to pursue in future publications.

One opportunity has arisen through and within an ongoing collaboration with the other team members from the *Drei Wochen Twitter* course about a joint English publication in an open access academic journal. This publication is designed to describe the course development and its facilitation and to outline opportunities for educators to build on the ideas and materials for creating their own courses. Another opportunity for publication may arise from my work as co-convenor of the AILA Research Network (ReN) *Perspectives and Trajectories of the Language Teacher in the 21<sup>st</sup> century*. Furthermore I am planning an article about Deleuzo-Guattarian thinking-doing methodology.

A potential for becoming-writer is going to be actualised in the publication of a book chapter (Emke, in press), which puts concepts and experiences from this research to work in Second Language Teacher Education (see section 4.3).

The final section of this chapter will deal with research challenges associated with the Deleuzo-Guattarian inspired research approach.

## **5.8 Research approach: challenges and opportunities**

I encountered several challenges during my research, and most of them related to difficulties in developing my own reading of and writing about Deleuzo-Guattarian philosophical concepts and in trying to find ‘a way’ to make them work within my research. Harris (2013, 2016) reminds us that Deleuzo-Guattarian concepts often carry a sub-text that is rooted in earlier philosophical concepts, which often are not referred to explicitly. I needed to carry out a lot of philosophical investigations during this study, always balancing the need to understand the roots of the Deleuzo-Guattarian concepts of *rhizome*, *assemblage* and *becoming* with the demands of a professional doctorate with a focus on language teaching and learning. This persistent challenge had implications for

the research process and time management: it made adhering to a mostly linear process, which is determined by a thinking in ‘stages’ (literature review, research framework development, data collection and analysis, conclusions) impossible and required a lot of flexibility, not least on the part of my supervisors.

Another challenging area was the application of Deleuzo-Guattarian concepts in a doctoral thesis. This task required a constant translation between the Deleuzo-Guattarian rhizomatic worldview, which is also reflected in the difficult and sometimes confusing language Deleuze and Guattari used in *A Thousand Plateaus*, and an arborescent worldview in which academic value is usually assessed on clear definitions and representational interpretation of data. Translation work is not only required on the conceptual level of this study but also on a linguistic level. For Deleuze and Guattari language was closely connected with the dominant, oppressive, State system they wanted to defy with their work. This may be one of the reasons why the language used in *A Thousand Plateaus* is very difficult to understand, a problem which is exacerbated by translating the French original into other languages, such as English (Bangou, 2012).

Since language plays such an important role for and in Deleuzian post-structuralism it is important to note that I did not read the French originals but relied on the English translation.

The third challenge pertained to data collection. The first launch of the questionnaire (Sep-Oct 2016) yielded eight responses, with seven people indicating that they would like to be involved in a later stage of the research. Since the pilot study questionnaire had gained responses from four people, who had agreed to take part in the main study, I felt at this stage that there were enough research participants to reach the self-chosen goal of eight complete participant vignettes. A complete participant



vignette consisted of the participants' replies in the online questionnaire, their tweet data and data from the Twitter network perceived as most influential for PD and an online interview with the participant. However, in the following months seven participants withdrew from the research for different reasons, so that I managed to gather tweets and interviews from four research participants (Hanna, Heather, Marc and Rachel) until the end of 2016. Since I had originally aimed at collecting data from eight research participants, I decided to issue the questionnaire a second time. The self-set objective of eight participants derived from the original research design, which followed the idea of comparing data sets from participants whose data would be collected at the same time to find common patterns of usage and experience. The second launch (Jan-Feb 2017) yielded six entries, and until mid-March 2017 two complete data vignettes from Maria and Laura could be included in the main study. Although the number of research participants remained below target, the collected data was so rich that I stopped gathering further data. In retrospect it proved to be fortunate that the complete data collection period across the three pathways questionnaires, tweets and interviews spanned more than five months, because it allowed for deeper analysis by tracing connections and their unfoldings on and beyond Twitter. If I had concentrated on comparing data sets from two participants during a four-week period, as originally planned, the workings and productions of tweet and hashtag assemblages could not have been made visible.

Another challenge I encountered arose from (non-) availability of digital (re-) sources. While books and articles usually can be retrieved online or in paper and are thus available for the entire duration of the thesis, tweets, blog posts and websites may not be. In the second year of my research I noticed that one of the research participants, Marc, had deleted his Twitter account. Ironically, Marc was the only participant who

wanted to be represented with his full name, which would have allowed me to use screenshots of his tweets in my thesis. However, I was presented with a more serious problem when I found out that the connection between the software NodeXL and Twitter, which I had used to capture Marc's tweets, was also broken, i.e. I could no longer click on a tweet URL to see the full conversation thread this tweet belonged to on Twitter. Instead, I had to reconstruct the place of a tweet within a conversation, which was time-consuming and not always successful. In retrospect it would have been helpful to produce more screenshots of participants' tweets to be able to follow the links they contained, in case the tweets were no longer accessible. On another occasion I found out that the research participant Heather had deleted her entire blog. Luckily, I had previously copied her blog post about professional development into a Word document and saved it on my computer, so the information was not lost.

Chapter 5 presented the 'findings' from this study and linked them to the two research questions outlined in Chapter 3.6, reported researcher becomings and described challenges and opportunities of the Deleuzo-Guattarian approach. The next chapter deals with the discussion and the conclusions from this research.

## CHAPTER SIX: DISCUSSION AND CONCLUSION

This chapter discusses the findings from this research, or the “stories in networks and networks in stories”, to borrow from a publication title by Baker-Doyle (2015). The notion of story is fitting for the many perspectives, which are entangled and enmeshed in FLT’s PD on...*and* with...*and* through Twitter. It is also pertinent for bringing attention to power issues inherent to networked learning, which beg the question of who is telling which story to whom.

Consequently, this chapter will first discuss the data stories presented in the previous chapter in light of the dominant *learning as participation* view in teachers’ PD and against the background of the *received view* and the *contextual views*, which are central to discourses about human-technological relations. These views were explained in the literature review in Chapter 2. These data stories, which were presented in Chapter 5, point to a re-conceptualisation of language teacher PD as multiple becomings, which is outlined in section 6.3. Section 6.4 discusses power issues inherent in networked learning.

Overall, this chapter puts forward an argument for ‘situated knowledges’ and partiality, but “...not partiality for its own sake but, rather, for the sake of the connections and unexpected openings situated knowledges make possible.” (Haraway, 1988, p. 521)

### **6.1 Stories of gain and stories of becomings**

This section is about the stories that have been told about Twitter-based teacher PD, but even more about the stories that are yet to be told. So far the landscape of teachers’ Twitter-based PD has been mainly explored and explained through stories of gain.

Stories of gain are underpinned by the *received view* and the *contextual view* of human-technological relations (Chapter 2.5) and privilege human-social interactions in networked learning. Such stories rely on an understanding of human behaviour that is based on notions of capital (Wenger, Trayner & de Laat, 2011), in particular on social capital. Although the concept of social capital is often linked to the French sociologist Bourdieu, it could also be linked to a concept from the field of economics: the ‘homo economicus’. Homo economicus is primarily a rational being who seeks to maximise utility when consuming and profit when producing: “In this model, based on its premises of rationality, individuality and self-interest, the social is redescribed in terms of the economic.” (Peters, 2001, p. vii). Although this concept of human nature is oversimplified, it seems to influence more sophisticated concepts, which attempt to explain learning in networks and in communities. An example is provided by Wenger, Trayner and de Laat (2011), who asserted that networked learning depends on a perceived sense of value:

“The primary recipients of value in a community or network are the participants themselves, both individually and collectively. If they do not get value, they will not participate and the community/network will fall apart.” (p. 15)

In the literature of Twitter-based teacher PD stories of gain are often linked to the timely availability of resources, such as information, teaching materials or lesson plans. These stories emphasise Twitter’s usefulness for “just-in-time professional development” (Greenhalgh & Koehler, 2017) but they tend to overlook the rhizomatic movement of tweet and hashtag assemblages across time and space.

Stories of gain can also be found in this research. They are embedded in the functionalities of connecting (see Chapter 5.4) and operate in tweet assemblages that link finding and sharing resources with (language) teachers' PD in a community of practice. Such stories were found in the tweets and retweets of the research participants Hanna, Heather, Laura, Marc, Maria and Rachel, as well as in tweets from the Twitter hashtag networks #ELTchat, #LTHEchat and #TBLTchat and in responses from questionnaire participants. Stories of gain are powerful, but they also constitute limitations within the Twitter-in-education landscape: they stifle (research) attempts to look beyond gain and use in networked learning.

However, there are also other stories presented in this research. These stories are different; they are stories of becomings. These stories do not fit into neat categories, although the style of their presentation in this thesis may have appeared that way. The section titles in the last chapter may seem like 'emerging themes', but the stories presented within the sections sought to delineate the functions, or workings, of tweet and hashtag assemblages to see what capability they had – and still have - to produce becomings. These stories are stories of broken links as much as stories of 'successful' connections.

Tweeting is an embodied and situated activity, i.e. FLT's' Twitter practices encompass practices that pertain to their teaching for different organisations (see Appendix 5), practices in different professional capacities, such as language teacher (all six participants), teacher educator (Rachel, Maria), language school owner (Maria), university student (Marc, Rachel) and their individual tweeting practices. Within assemblage thinking, these practices are fluid and inseparable; both are part of the human element that enters situated tweet or hashtag assemblages. Equally, context exists *in* the situation and not outside of it (Clarke, 2005), so that a categorisation of

tweets, i.e. whether a FLT tweets in the capacity of teacher or teacher educator or even as a ‘private person’ does not make sense. Human intention for tweeting is but one element that enters the workings of tweet or hashtag assemblages; the “interesting, the important and the remarkable” (May, 2003) is the productive power of these assemblages and what they produce, i.e. *becoming* (Deleuze & Guattari, 1987).

## **6.2 Re-conceptualisation of language teacher professional development**

Previous research in the area of educators’ Twitter-based PD has mostly centred on educators’ use of Twitter as a tool for self-directed professional learning and community learning. Phenomenological research has found Twitter to be useful for connecting with other teachers and for finding and sharing resources (e.g. Forte et al., 2012; Wesely, 2013). The conclusions drawn from this line of research have tended to steer the public and academic discussion of educators’ Twitter-based PD towards a binary between ‘useful’ and ‘not useful’ for (improved) teacher practice. Other research has sought to investigate educator relations in Twitter networks with the help of Social Network Analysis (Rehm & Notten, 2016). Such research has been valuable for making the complexities and dynamics of networked learning visible through the production of network illustrations.

However, common to both lines of research has been their anthropocentric focus, which fails to address functionalities that co-construct human practices, the context(s) in which they occur and are enacted, and ultimately also human subjectivities. In this perspective agency does not lie with single (human) elements, but with the continuously changing “working arrangement” (Buchanan, 2015, p. 383), the assemblages and their capabilities for producing something new and different, i.e. becomings that pertain to humans and non-humans alike.

Language teachers and language teaching practice enter tweet and hashtag assemblages and co-determine the rhizomatic movement of these assemblages. Conversely, language teachers' subjectivities and language teaching practice are co-constructed through the workings within assemblages that consist of a multiplicity of human and non-human elements which are also continuously moving and connecting with other elements and other assemblages on...*and* through...*and* with Twitter. The capability of assemblages to produce becomings is always already there, but becomings are unpredictable and do not always actualise. There are becomings that may actualise in the future, and other becomings may never actualise: they remain virtual becomings. However, assemblages have the capability to produce thought and action within and across (a specific) time and (a particular) space, so that virtual becomings may actualise at a later time in other assemblages on and/or beyond Twitter.

Within and through tweet and hashtag assemblages becoming-teacherentrepreneur is a new subjectivity that has become available for FTLs, where the value of a connection is measured through metrics, such as the number of followers and followings or the number of retweets. These metrics and other Twitter workings (see next section) are inseparably entwined with FLT's practices, and they produce different practices. Such practices aim to increase connection value by posting content that is thought to be 'relevant' for followers or by employing special services and software to increasing the number of followers (Laura).

Other becomings which have been made available within and through tweet and hashtag assemblages include becoming-blogger (Maria) and becoming-chat-organiser (Marc). Tweet and hashtag assemblages that displayed her Czech teaching have connected Hanna to potential new customers, i.e. other language teachers, and opened new possibilities for her to extend her language teaching to the online environment.

Within and through tweet and #LTHEchat assemblages becoming-chat-co-organiser was made available to Rachel.

Finally, FLT's PD could be re-conceptualised as a multiplicity of assemblages, where teaching and teachers' 'context' is not outside the situation in which PD is constructed through these assemblages. Context is not a static entity, but constructed through continuously changing assemblages which involve changing working conditions, changing work environments, different learner/customer expectations, human preferences, technological change, and other elements. Instead of regarding FLT's PD as the outcome of FLT's self-directed and community learning on Twitter, it may be more productive to conceive of it as rhizomatic movement through tweet and hashtag assemblages of varying intensity and speed that produce unpredictable preparations for future careers.

### **6.3 On networked power and power in networks**

Anthropocentric discourses of PLN and CoP have claimed the territory of Twitter-in- education, neglecting the workings of the Twitter machine. Yet, these workings are powerful; they co-construct tweet and hashtag assemblages, whether humans are aware of these workings or not. Economic interests, both on the part of (marketing) companies and individuals co-construct the Twitter machine and plug into tweet and hashtag assemblages through recommender systems across (mobile) technical devices. These recommender systems suggest new connections to Twitter users, and Laura's example shows that these suggestions can be powerful. At the same time the Twitter *machine* constantly collects user data, which feeds into algorithmic systems and Twitter metrics, informs Twitter advertising and is fed back to users via recommendations for new connections and recommendations for following trending hashtags. Networked power can be regarded as the power of knowledge production



within (Twitter) networks, across network actors. This would be the case in an evenly distributed network, where all actors have access to all other network actors and hence to the flow of resources, such as information. However, the network examples in this research have shown that this is not the case. Instead, some network actors are more central to conversations than others and thus can steer conversations. However, they also provide network stability, which is particularly important for smaller networks. Marc's example has shown that it is very difficult to sustain a Twitter hashtag network, if the network organisation and moderation rely on one person only. Connecting with central network actors, such as Moderator1 in the #ELTchat network, the chat founder in the #LTHEchat network or with Moderator3, who contributed heavily to the #ELTwhiteboard network, provides direct access to network conversations and resources. Simultaneously, connecting with central network actors further increases their influence in the network and their Twitter metrics.

All six participants showed in their interviews that they were aware of influential network actors, and Maria very succinctly remarked in her interview that tweets from influential actors are given more value by virtue of their Twitter metrics. She also commented on the workings of retweets as endorsement for "mates" (Maria, interview) rather than to share new and relevant information with Twitter followers or with a particular network.

While the issue of power in networked learning is not new, it has tended to be ignored by Twitter-in-education research. Notable exceptions include Kerr & Schmeichel (2018), who discussed gender differences in Twitter chats and Funes and Mackness (2018), who focused on exclusionary structures in a Twitter community. It appears that the dominant *learning as participation* view in the Twitter-in-education territory has led to an increase in the production of research along the same lines of

thought ('repetition'). Deleuzo-Guattarian concepts are helpful for disrupting these structures and for opening up the territory to start different, non-binary and non-linear rhizomatic explorations. By acknowledging subjectivities rather than holding on to identity-based understandings of humans and by acknowledging the continuing and dynamic entanglement of humans and non-humans in the production of situated knowledges, new research pathways become possible. Such new pathways will be introduced in the next and final chapter of this thesis.

## CHAPTER SEVEN: RECOMMENDATIONS AND FUTURE RESEARCH

*“Knowledges and knowledge productions are situated and noninnocent.”*

(Clarke, 2005, p. 18, italics in the original)

The final chapter provides recommendations from this research for language teachers, language education providers and educational research (section 7.1), outlines the limitations of this research and provides suggestions for future research (section 7.2).

### **7.1 Recommendations**

Social media research has been of growing interest for educational researchers in recent years. In its wake, investigations into teachers’ use of Twitter have tried to determine if and to what extent the microblogging service is beneficial for educators’ informal professional development. However, current research approaches tend to prioritise an anthropocentric perspective, which fosters thinking about Twitter-based PD in categories of its contextual use and gain. Consequently, recommendations derived from such research tend to focus on the factors that enable or constrain educators’ use of Twitter for PD (e.g. Visser et al., 2014).

The approach taken in this thesis is different: the final chapter will describe connections with (freelance) language teachers’ PD practices, connections with language teaching providers’ PD efforts and connections with policy efforts to support (language) teachers’ PD. Based on the identification of these connections, possible movements within these three areas will be suggested.

### 7.1.1 (Freelance) language teachers

Twitter-based PD is attracting growing attention from teaching practitioners, not only because it is easily accessible and (still) free of charge. Contributing to its popularity is that teachers' professional knowledge base "continues to be dominated by the sharing of teaching experiences, critical incidents, and specific incidents, within which knowledge of practice is implicitly embedded." (Loughran, Mitchell & Mitchell, 2003, p. 868). Embedded in stories of gain, Twitter-based PD has potential practical value for addressing challenges in the day-to-day work of language teachers, such as helping to find suitable teaching resources and providing support for overcoming teacher isolation. This makes Twitter-based PD particularly interesting for FLT's, whose professional situations are often marked by uncertainty, instability and precariousness, as shown in Chapter 2. Connecting produces new thought about language teaching and learning (see Chapter 5), and the question is not if *becoming* happens, but when it happens (May, 2003), as explained in Chapter 6.1.

Through tweet and hashtag assemblages the combining of different professional practices and roles is made available to FLT's, and entangled, hybrid professional subjectivities are produced. For example, a FLT who teaches English in Japan could showcase his/her language teaching skills, promote his/her self-produced teaching materials and discuss his/her research activities with other researchers and teaching practitioners. Connections within and beyond tweet and hashtag assemblages may produce new and unpredictable employment opportunities for this FLT/materials developer/researcher. New teacher subjectivities, such as becoming-teacherentrepreneur, are produced through tweet and hashtag assemblages and operate within them. By tweeting content and by offering services that are deemed 'useful' by other language teachers, FLT's can extend their professional activities, enhance their

work profile and even co-create new employment opportunities within and through Twitter networks. An example from this research are tweet and hashtag assemblages focusing on tasked-based language learning, which led to the production of new and different teaching practices, the creation of new Twitter networks, such as #TBLTchat, and, finally, to a paid online professional development course offering on tasked-based language teaching in March 2019. This online course is facilitated by a network of FLTs and supported by a Spanish language teacher co-operative. However, the example of the #TBLTchat network (Chapter 5.6.2) showed that becomings, such as becoming-chat-organiser or becoming-Twitter-host are transient in nature, which affects the whole network. Sustaining a regular Twitter chat cannot be achieved by a single network actor; it is work that is performed by a network of actors with different and sometimes alternating roles: a network actor who moderates (or hosts) one Twitter chat may be the chat summariser of the next chat, and vice versa. Other work important for sustaining a Twitter chat includes the organisation of chat topics by vote (see #ELTchat and #TBLTchat in Chapters 5.6.1 and 5.6.2) or through the use of guest moderators (see #LTHEchat in Chapter 5.6.3); the regular announcements of the chat in tweet assemblages and their dissemination via retweets, and the creation of a dedicated website for the chat.

Through their tweeting FLTs co-produce power structures and promote narratives that work on and beyond Twitter. This complex web is often overlooked in (academic) discourses about (language) teachers' Twitter-based professional development. For example, a FLTs' connecting with the moderator of a Twitter chat with a high number of followers provides access to potentially valuable information for the FLT, but also increases the metric value, and hence the status, of the moderator. For potential employers FLTs' tweets and Twitter metrics provide an additional source of

information about their teaching and PD activities, adding to FLT's' employment profiles. Tweeting also feeds into the algorithmic workings of Twitter across (mobile) devices and co-produces trending topics, user recommendations and more or less personalised Twitter advertising.

So what might be done to develop critical thinking-doing in FLT's' PD on...*and* with...*and* through Twitter? Course offerings such as the English *Ten Days of Twitter* or the German course *Drei Wochen Twitter* provide opportunities for Deleuzo-Guattarian explorations and experimentations that go beyond utility discourses. These courses could connect with other experimentations which seek to make Twitter users aware of the power of Twitter metrics and the workings of datafication in education. Two such experimentations are the 'Twitter demetricator' (<https://bengrosser.com/projects/twitter-demetricator/>) and a rubric developed by the organisation Hybrid Pedagogy, which can be found in their blog post *A Guide for resisting EdTech: The case of Turnitin* (Morris & Stommel, 2017, n.p.). The 'Twitter Demetricator' is a browser extension that hides Twitter metrics, so that Twitter users only see the tweet. In an article about his earlier experimentation with the 'Facebook Demetricator', Benjamin Grosser argued that metrics incite a craving for more (likes, retweets, followers) in individuals and "lead users to craft self-imposed rules around the numbers that guide them on how, when, and with whom to interact" (Grosser, 2014, n.p.). The rubric, on the other hand, consists of a set of questions that are designed to raise awareness for the pedagogic use(fulness) of educational technology and for data privacy and data ownership issues amongst educators. This could be particularly helpful for FLT's who consider using Twitter for their professional development and/or with their students.

### 7.1.2 Language education providers

Language education providers range from language schools to universities. These organisations are often not aware of the existence of FLT's Twitter-based PD activities. However, raising awareness among language education providers is an important issue for three reasons. Firstly, FLT's PD on...*and* with...*and* through Twitter could be connected to existing PD opportunities in productive ways. Identifying FLT's Twitter-based PD activities and mapping such activities in connection with (a) Twitter network(s) would make FLT's PD practices outside the organisation visible and help identify "silent experts" and "bridge-builders" (Baker-Doyle & Yoon, 2011), providing 'entry points' for the organisation to foster communication among FLT's. Information on the fluid nature of practices and the complex and dynamic relations between practice and PD could also inform mentoring programmes for part-time staff (Beaton, 2017). Another pathway could be for the organisation to explore in what way(s) open badges (Jovanovic & Devedzic, 2014), which FLT's gained for participation in Twitter networks (see Chapter 5), could be made to work within an existing organisational PD programme.

Secondly, FLT's Twitter-based PD activities and their teaching practices are inseparably intertwined, which may pose challenges for what is regarded as 'effective teaching' within the organisation. Identifying FLT's who actively pursue Twitter-based PD and inviting them to lead teacher-led PD sessions within the organisation can help connect FLT's with the organisation and benefit intra-organisational discussions about teaching and learning. Thirdly, FLT's PD Twitter-based practices are not restricted to skills and knowledge accumulation but are interlinked with political discourses, as described in the Chapters 5.2. and 5.3. Such discourses should not be ignored in

organisational PD programmes; instead they could be turned into fruitful discussions that benefit the development of the whole organisation.

### **7.1.3 Education policy**

Kessler (2017) deplored the lack of adequate consideration of technology in language education at large and in language teacher education in particular. Instead of “looking forward to the ways in which cutting-edge technologies can enhance or revolutionize teaching and learning” (p. 11), language teacher preparation still focuses on learning to use existing technologies. However, it cannot be ignored that many language teachers still struggle with integrating technology in their teaching and in student learning. The European Union’s DigCompEdu framework (see section 2.6.1) could help language teachers assess and develop their digital competencies. However, this framework largely ignores the potential of social media for and within (language) teachers’ PD; in fact, the term ‘social media’ only appears twice in the whole document. In the DigCompEdu framework social media is regarded as a resource, and this view fails to acknowledge the complexities and dynamics of human-technology encounters as argued throughout this thesis and specified in the concept of the Twitter *machine*. In order to align the DigCompEdu framework with (language) teachers’ existing social media-based PD practices and hence make it ‘useful’ for them, an appraisal of the implications of ‘algorithmic education’ (Perrotta & Williamson, 2016) should be incorporated in this framework.

### **7.2 Future research**

Illeris (2009) provided an overview of contemporary learning theories and asserted that “a great number of more-or-less special or overlapping theories of learning are constantly being developed, some of them referring back to more traditional



understandings, others trying to explore new possibilities and ways of thinking” (p. 1).

This thesis has attempted to do the latter and hopes to contribute towards a different socio-technological understanding of (language) teacher PD and learning, which considers the complexities and dynamics of human-non-human encounters.

Boud and Hager (2012) postulated a need for “studies of how professionals actually learn and how the environments in which they operate influence them and the practices in which they engage” (p. 28). This research has answered this call by adopting a novel research approach, which considers the embodiment and situatedness of teachers’ Twitter-based PD and the entanglements of technology and teacher practices.

This doctoral investigation offers a different perspective, which focuses on the relational working(s) of human and non-human elements within FLT’s use of Twitter for PD. By shifting the research focus from focusing on the perceptions and experiences of individuals to exploring the situated coming(s)-together of human and non-human elements on...*and* with...*and* through Twitter, the research territory is opened up to reveal complex and dynamic workings that relate to teaching practices, teacher subjectivities and the Twitter *machine*.

This study has contributed to a growing body of research which advocates experimenting with Deleuzo-Guattarian concepts, such as *rhizome*, *assemblage* or *becoming*, to think education differently. However, in contrast to research that claims that a complete break with traditional (qualitative) research methods is necessary to achieve new thinking (and doing) in education, this investigation has sought to make established methods of Grounded Theory and Social Network Analysis work within a research framework that was inspired by Deleuzo-Guattarian thinking.

My research has emphasised that research methods do not exist as mere tools. Instead, they are elements of research assemblages, socio-technological entanglements of thinking-doing-writing that produce (the doctoral) research. Hence, methods are not 'objective' or 'neutral'; they are performative, i.e. they co-construct the research in which they exist and are used by the researcher, who is also an element of multiple research assemblages. Within the research assemblages the researcher is not objective or neutral, but always already in-between. Thought produced within this thesis could benefit critical discussions of research ethics in social media research. A relational perspective of social media practices as outlined in this research advocates the creation of (a) dynamic and adaptable research framework(s) that considers issues of openness (and closedness) and datafication. Such (a) framework(s) cannot be a one-size-fits-all type of framework; instead, it/they would need to be made to work within (yet) unseen and unpredictable rhizomatic research movements.

All research has its limitations, which give rise to exciting opportunities for the development of new research that seeks to make (a) difference. The data stories presented here constitute limitations in that their choice was determined by me. Therefore it needs to be acknowledged that by foregrounding certain connections, other potentially fruitful connections of tweet and hashtag assemblages and their rhizomatic movement(s) within and beyond Twitter were not explored. This is particularly true for the social network analyses of Twitter networks explored in this thesis. The networks explored (#ELTchat, #TBLTchat and #LTHEchat) were based on research participants' stated preferences and on two salient hashtag networks, which emerged through relational cross-reading of data (#ELTwhiteboard and webconf2016). However, there is a multiplicity of other Twitter hashtag networks, which could have been explored in connection with the networks #ELTchat, #TBLTchat and #LTHEchat. Exploring only

two salient hashtag networks constituted a necessary compromise in view of the resources available for completing this thesis on time.

The specific combinations of data collection and data enquiry pathways also influenced the production of the situated knowledges presented in this thesis. In particular, this thesis relied on text-based data contribution from participants. In view of post-modernism's criticism of text-based research future research could concentrate on visual Twitter artefacts and develop new pathways to interrogate such data. Future research could also choose to connect the concepts of *rhizome*, *assemblage* and *becoming* with other Deleuzo-Guattarian concepts (not considered in this thesis), such as *nomad* or *desire*, to explore the Twitter-in-education landscape in ways that do not privilege humans.

My research focused on the workings and productions of tweet and hashtag assemblages. Future research could investigate workings and productions of discourses within Twitter chats, possibly with the help of the Multiple Literacies Theory approach (Masny, 2013, 2016). Future studies could be particularly fruitful for investigating notions of reading, since 'reading tweets' was mentioned frequently by research participants across all data sources as a PD activity (see Chapter 5.4). Furthermore, such research would benefit the Twitter-in-education landscape by offering a different perspective from the *learning as participation* view, which tends to regard the activity of reading as 'lurking'.

Finally, in the field of language teacher education this research can be useful for thinking about ways to integrate social media practices into teacher PD programmes which acknowledge the socio-technological entanglement of practices and development. This research could also stimulate a critical discussion of 'context', away from an

understanding of context as an entity that influences teaching but exists independently of it. Last but not least, this study could also enrich discussions about the use of technology in and for language teaching. Kukulska-Hulme (2012) once asked in an article “Smart devices or people?”. Maybe the answer is “Both *and* neither: It is (with)in the power of assemblages!”.

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## APPENDICES

**APPENDIX 1: Chronological overview of the data collection process**

<b>Date</b>	<b>Kind of data</b>	<b>Amount of data</b>
1 Sep – 15 Oct 2016	Online narrative frame questionnaire	n=8
1 Sep 2016	Online meeting with Hanna (research notes) Online meeting with Rachel (research notes)	
15 Oct – 15 Dec 2016	Tweets and retweets from Twitter network #ELTchat	n=3681
15 Oct – 15 Nov 2016	Tweets and retweets from Hanna	n=410
15 Oct – 16 Nov 2016	Tweets and retweets from Twitter network #LTHEchat  Tweets and retweets from Rachel	n=5694  n=456
18 Oct 2016	Online interview with Rachel	65:42 min
5 Nov 2016	Online meeting with Marc (research notes) Online meeting with Heather (research notes)	
8 Nov 2016	Online meeting with Maria (research notes)	
15 Nov – 15 Dec 2016	Tweets and retweets from Twitter network #TBLTchat  Tweets and retweets from Marc	n=191  n=890
15 Nov – 15 Dec 2016	Tweets and retweets from Heather	n=17
22 Nov 2016	Online meeting with Laura (research notes)	
7 Dec 2016	Online interview with Hanna	73:55 min
16 Dec 2016	Online interview with Marc	78:25 min
19 Dec 2016	Online interview with Heather	60:59 min
10 Jan – 13 Feb 2017	Online narrative frame questionnaire	n=6
15 Jan – 15 Feb 2017	Tweets and retweets from Maria  Tweets and retweets from Laura	n=35  n=212
16 Feb 2017	Online interview with Maria	68:09 min
9 Mar 2017	Online interview with Laura	32:03 min
15 Jan – 14 Mar 2017	Tweets and retweets from Twitter network #ELTchat	n=4268



## APPENDIX 2: Online narrative frame questionnaire

### Self-employed / freelance language teachers' informal professional development on Twitter

#### Page 1

##### Welcome

You are invited to participate in a study examining the informal professional development of self-employed / freelance language teachers on Twitter. Self-employed / freelance language teachers usually work on a contractual basis, often for more than one educational organisation. Some self-employed / freelance language teachers work part-time, some work full-time. Rather than sending out a questionnaire, I use the method of narrative frames to get deeper insights into your 'story' of professional learning experience on Twitter. As you can see below, this online narrative frame consists of beginnings of sentences which I would ask you to complete with as much detail as you like.

##### What is the purpose of this study?

The purpose of this study is to find out how self-employed / freelance language teachers use Twitter for their informal professional learning. I am also interested in finding out if and to what extent self-employed / freelance language teachers' professional learning on Twitter shapes the way they teach. The information I get from this study will raise other teachers' awareness of the potential of Twitter for professional purposes and could enable them to use Twitter for their professional development in an informed way.

##### Who is conducting this study?

This study is conducted by Martina Emke, doctoral researcher at the Open University in the United Kingdom, and it is part of my Doctorate in Education (EdD) thesis. If you have any questions regarding this study or would like to have more information about my thesis, please provide your e-mail address at the end of this online narrative frame or contact me on [Martina.Emke@open.ac.uk](mailto:Martina.Emke@open.ac.uk). You can also contact me on Twitter @MartinaEmke.

##### What happens to my data?

Your data will be stored on my computer, anonymized, password-protected and treated with utmost confidentiality. However, you can also choose to have your own first name shown in the data. In this case, please indicate your preference at the end of this online narrative frame.

Your data will be used as part of my EdD thesis and in research publications related to my EdD thesis. At a later stage I may want to contact you again with more specific questions. If you would also like to be included in this research stage, please provide your e-mail address and your Twitter handle at the end of this online narrative frame.

Your participation in this study is voluntary and you can withdraw your consent from this research without negative consequences. If you want to withdraw from this research after you have filled in this online narrative frame, please contact me on [Martina.Emke@open.ac.uk](mailto:Martina.Emke@open.ac.uk) by 30 April 2017, and I will remove your data from my study.

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As a self-employed / freelance language teacher I need to keep abreast of new developments in the profession because...

As a self-employed / freelance language teacher I can get informal professional development, i.e. professional development that is not formally organised, by....

I use Twitter for.....

I see Twitter as a professional learning tool because....

I connect with other (language) teachers on Twitter by.....

These connections help me to....

There is one way that Twitter has shaped the way that I teach, and that is ....

And finally I wanted to say....

As a self-employed / freelance language teacher I teach (please tick all appropriate boxes) \*

- English
- French
- German
- Spanish
- other languages (please specify)

As a self-employed / freelance language teacher I teach at (please tick all appropriate boxes) \*

- primary school
- secondary school
- a university
- in further education
- a language school
- an adult education centre
- other (please specify)....

If you would like to be included at a later stage of this research, please provide your e-mail address:

If you would like to receive further information about this research, please provide your e-mail address:

You have completed this narrative frame questionnaire. Thank you very much for your participation.

Please click on "Done" to submit your questionnaire before you close this window.



**Linguistic exchange** with another teacher on Czech word for 'shadenfreude: <link to tweet>

**Hanna takes pic of her whiteboard** and posts it asking Twitter users to guess the meaning (Czech class); one person responds:<link to tweet> ; uses her own hashtag for this (which was created by another language teacher: <link to tweet>; leads to another exchange in which Hanna compliments a language teacher on her Czech language skills: **links to tweets**; ; leads to a potential 2 new private students: <link to tweet>; leads to an exchange in which Hanna receives praise for the activity: <link to tweet>; **further questions**: was this idea derived from #ELTwhiteboard? what made her transfer it to Czech, asking other people to guess the content?

**Classroom management**: using cards for disciplining students; -exchange on using cards for disciplining students: Might grade the language - different cards. from please be quiet to... you know what. <link to tweet>; is this exchange ongoing?

conversation with @user about a student not doing his homework; got advice <link to tweet>; Hanna's initial tweet on this led to another conversation with research participant Marc and others <link to tweet>

**Freelance teacher working conditions**: commented and tweeted <link to tweet> on Marc's blog post about FLTs and working conditions <link to blog post>

**Role of #ELTchat for professional development**: Hanna said #ELTchat quite important but she doesn't take much part in #ELTchats

- One tweet with ref to #ELTchat <tweet text; <link to tweet >; Question: 'story' of this tweet; Hanna's activities in #ELTchat and connections with her (teaching) practices

**General use of hashtags: when does Hanna use them and for what purposes?**

**Ending:**

Prompt from the narrative frame questionnaire regarding 'need for PD': "[I don't want to become old school, boring, old-fashioned and I want to keep up with the young generations. Also to find colleagues who are like me. "]

Prompt from the narrative frame regarding 'shaping' of teaching through Twitter:"it has become more reflective, happier and imaginative. Also confident, because I know I am the modern educator now:-)"

Prompt from the narrative frame on Twitter as a professional learning tool: "... I guess the top thing is we're all the same level. There are no names, titles, and if you're friendly polite and honest, you get to talk to some amazing people."

Do you see yourself using Twitter in the foreseeable future? What could be a reason for you to stop using Twitter for professional development?

**Finish:** Is there anything you would like to ask me?

**Thank you very much for your participation!**

**APPENDIX 4: Example of an abstract Situational Map (Clarke, 2005, p.88)\***

Figure 3.1 Abstract Situational Map: Messy/Working Version



\*Reproduced courtesy of SAGE Inc. publishers

**APPENDIX 5 Information on research participants' teaching**

<b>Name</b>	<b>Language(s) taught</b>	<b>Teaches where</b>	<b>Form(s) of teaching</b>	<b>Country of residence</b>	<b>Country/countries of work</b>
Marc	English	Secondary school, university, company, private clients	Face-to-face	Japan	Japan
Laura	English	Language school, private clients	Face-to-face, online	UK Spain	UK Spain
Heather	English	Private clients only	Face-to-face, online	UK	UK
Maria	English	Owens a language school, primary school, secondary school, university, teaches in CELTA courses	Face-to-face	Italy	Italy UK
Rachel	English German	University, language centre (university)	Face-to-face	UK	UK
Hanna	English Czech	University, language school, private clients,	Face-to-face	Czech Republic	Czech Republic



**APPENDIX 6: #ELTchat topics (1 Oct 2016-15 Mar 2017)**

<b>Date</b>	<b>Chat topic</b>
5 Oct 2016	How do we help students record new vocabulary?
12 Oct 2016	How to help teachers become more comfortable with teaching pronunciation
19 Oct 2016	How to develop teachers' digital and literacy competence
26 Oct 2016	Conversational skills in English may differ from a student's L1
2 Nov 2016	How do we develop our students' digital literacies?
9 Nov 2016	What makes a lesson memorable for you or your learners?
16 Nov 2016	What is your favorite tool in English teaching or English learning?
23 Nov 2016	Teaching Diversity, Inclusion and Social Justice Issues
30 Nov 2016	How to make the most of materials in class and how to maximise the use of exercises
7 Dec 2016	Sharing a recent "critical incident" from a class, and doing a little cooperative reflection
14 Dec 2016	What could we do to revolutionise teacher training? What needs to change or be added?
11 Jan 2017	How to deal with reading tasks in an active and entertaining way
22 Jan 2017	1-2-1 Teaching Tips
25 Jan 2017	Teaching with WhatsApp
1 Feb 2017	How to improve listening skills
8 Feb 2017	What's the best way to approach 'cover lessons'?
15 Feb 2017	Classroom observations and how we can use them (both as observer and observed) to improve our teaching
22 Feb 2017	How to deal with native students in an EFL classroom?
1 Mar 2017	Assessing writing
8 Mar 2017	Reading skills for advanced and very advanced learners
15 Mar 2017	How can Web 2.0 help students develop their speaking skills?

## APPENDIX 7: #ELTchat metrics and participants' connection (excerpts)

Week / Activity	No. of tweets and retweets / no. of network actors	In-degree (ranking)	Out-degree (ranking)	Betweenness centrality (ranking)
<p><b>One week Nov 2016</b></p> <p><b>Heather</b> comments on a tweet by Moderator1 which contains a link to a padlet with tools for English teaching / learning which were shared during the one-hour chat.</p> <p><b>Marc</b> takes part in a conversation on lesson plans.</p> <p><b>Heather</b> comments on a call for voting tweet and states that she voted but can't take part because of work commitment. She wants to contribute to the slow burn</p> <p><b>Heather</b> comments on a tweet by Moderator1 about her moderating during the #webconf2016.</p>	535/113	Moderator1 (1) Eltchat (3) Moderator2 (4) Maria (9) Martina (17) Heather (20) T.preneur (72) Marc (109)	Moderator1 (1) Moderator2 (2) Maria(5) Moderator3(8) T.preneur (11) ELTchat (12) Heather (20) Martina (34) Marc (91)	Moderator1 (1) Eltchat (2) Moderator2 (3) T.preneur (10) Maria (17) Heather (32) Martina (37) Marc (95)

<p><b>Heather</b> tweets from #webconf2016. <b>Maria</b> takes part in the weekly chat.</p> <p>Some chat tweets refer to importance of whiteboards for language teaching. #ELTwhiteboard is mentioned twice in the network.</p> <p>I tweet about a resource bank and ask #ELTchat participants to contribute.</p>				
<p><b>One week Jan 2017</b></p> <p><b>Heather</b> asks #ELTchat for recommendations on iPad apps. She asked three weeks before but didn't get a reply. This time there are two replies from which conversations arises.</p> <p><b>Marc</b> retweets a call for voting and takes part in a tweet conversation between Moderators 1 and 2 about the importance of needs analysis.</p>	497/145	Moderator1 (1) Moderator2 (2) ELTchat (3) Moderator3 (8) Maria (12) Heather (15) Martina (33) T.preneur (46) Hanna (66) Marc (134)	T.preneur (1) Moderator1 (2) Moderator3 (4) Moderator2 (5) Maria (6) Martina (8) Marc (21) Heather (34) Hanna (118)	T.preneur (1) Moderator1 (2) ELTchat (3) Moderator2 (5) Moderator3 (8) Heather (15) Maria (18) Marc (24) Martina (29) Hanna (118)

<p><b>Hanna</b> has a Twitter conversation with another LT about a chat. Because Hanna doesn't use the #ELTchat hashtag; her tweets do not show in the #ELTchat network.</p> <p><b>Maria</b> takes part in the chat.</p> <p><b>Maria</b> retweets chat summary and call for voting.</p> <p>I tweet my call for research participants. (2<sup>nd</sup> issue of online narrative frame questionnaire) and the call for papers for the EuroCALL2017 conference.</p>				
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**APPENDIX 8: #LTHEchat topics (Oct /Nov 2016)**

<b>Date</b>	<b>Chat Topic</b>
19 Oct 2016	Feedback and Feed-forward: Language and Timing
2 Nov 2016	The porous university
9 Nov 2016	Using data and artificial intelligence to improve teaching and learning
16 Nov 2016	What motivates us to use digital tools for learning and teaching

**APPENDIX 9: #LTHEchat metrics and connections with Rachel**

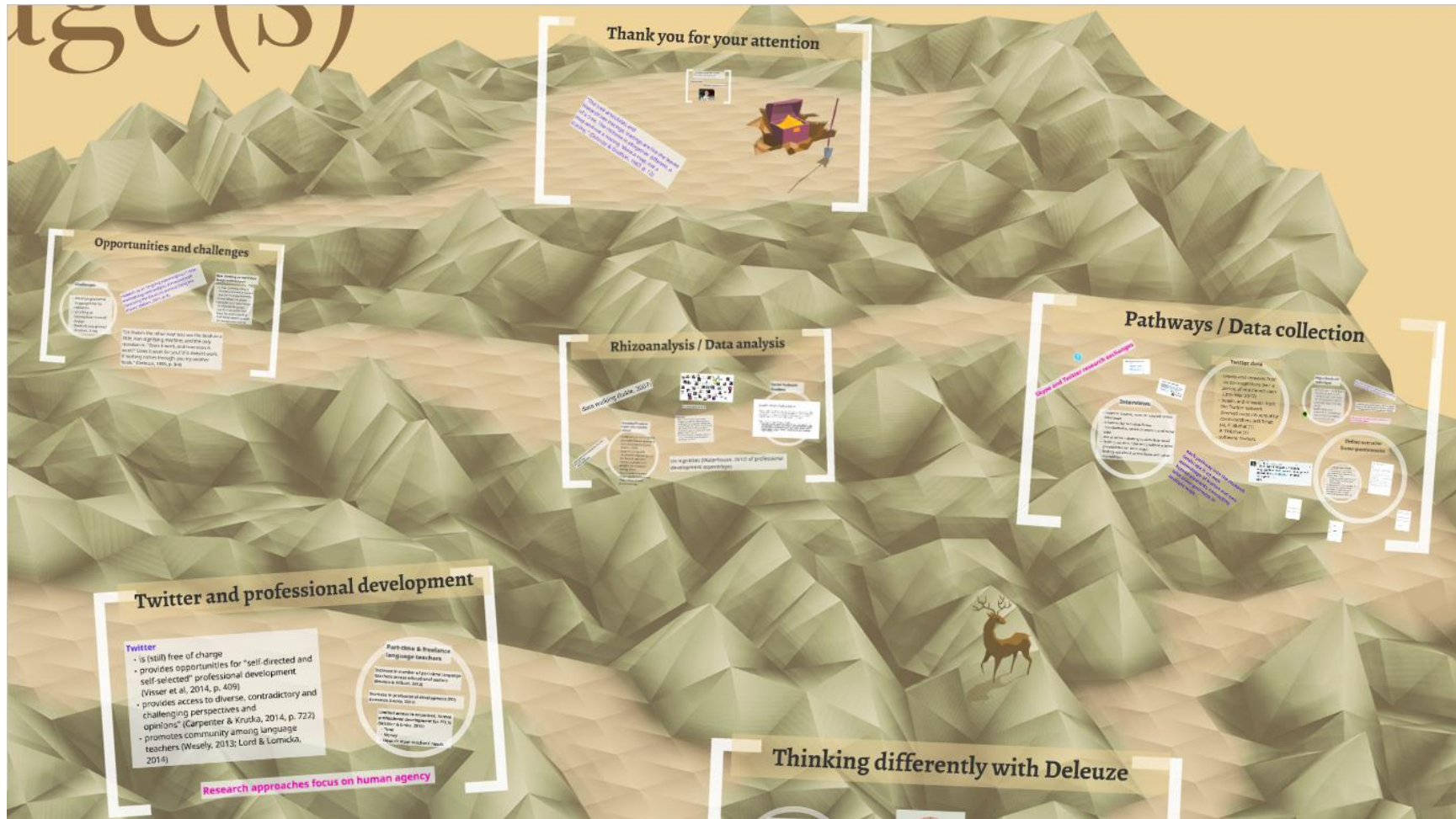
<b>Week / Activity</b>	<b>No. of tweets and retweets / no. of network actors</b>	<b>In-degree (ranking)</b>	<b>Out-degree (ranking)</b>	<b>Betweenness centrality (ranking)</b>
<p><b>One week Oct 2016</b></p> <p><b>Rachel</b> takes part in the chat.</p> <p>I retweet a chat announcement tweet.</p>	1580/216	Guest Moderator (1) LTHEchat (2) Chat Founder (13) Rachel (18) Martina (147)	LTHEchat (1) Guest Moderator (3) Chat Founder (8) Rachel (13) Martina (94)	LTHEchat (1) Guest Moderator (2) Chat Founder (24) Rachel (39) Martina (106)
<p><b>One week Oct 2016</b></p> <p><b>Rachel</b> takes part in the chat.</p> <p>I comment on one chat tweet.</p>	1027/205	HEA_chat (1) LTHEchat (2) Guest Moderator (7) Chat Founder (13) Rachel (33) Martina (106) T.preneur (131)	Chat Founder (3) LTHEchat (7) Rachel (11) Guest Moderator (15) HEA_chat (70) Martina (121) T.preneur (130)	HEA_chat (1) LTHEchat (2) Guest Moderator (12) Chat Founder (13) Rachel (29) T.preneur (80) Martina (205)
<p><b>One week Nov 2016</b></p> <p><b>Rachel</b> takes part in the chat.</p>	1296/168	LTHEchat (1) Guest Moderator (1) Chat Founder (5) Rachel (13) ELT_teacher (81)	Chat Founder (2) LTHEchat (3) Guest Moderator (4) Rachel (12) ELT_Teacher (90)	LTHEchat (1) Guest Moderator (3) Chat Founder (5) Rachel (15) ELT_Teacher (92)
<p><b>One week Nov 2016</b></p> <p><b>Rachel</b> takes part in the chat.</p>	1684/252	LTHEchat (1) Guest Moderator (2) Chat Founder (16) Rachel (34)	Guest Moderator (2) Chat Founder (5) LTHEchat (6) Rachel (20)	LTHEchat (1) Guest Moderator (2) Chat Founder (14) Rachel (36)

**APPENDIX 10: Participants: tweets and followings/followers**

<b>Participant name</b>	<b>Total number of tweets b/end*</b>	<b>Followings b/end</b>		<b>Followers b/end</b>	
Hanna	3707 / 3973	653 / 664	+11	531 / 556	+25
Heather	451 / 458	1660 / 1667	+7	920 / 924	+4
Laura	780 / 929	2084 / 2300	+216	10724 / 12255	+1531
Marc	9573 / 10064	639 / 669	+30	854 / 886	+32
Maria	276 / 283	72 / 72	0	77 / 87	+10
Rachel	4146 / 4443	1275 / 1383	+108	814 / 881	+67

\*) b/end = beginning and end of data collection period

APPENDIX 11: Figure 4.1 AILA 2017 conference slide (enlarged)





**APPENDIX 12: Figure 4.4 Data walking: questionnaire (enlarged)**

H16 : X ✓ fx Twitter effectivity

	H	I	J	K
1	3. I use Twitter for.....	4. I see Twitter as a professional learning tool because....	5. I connect with other (language) teachers on Twitter by.....	6. These connections help me to....
6	work only to network, keep up with our fast moving field.	It's <b>easily accessible</b> and updates constantly. Also, I feel it's not as 'involved' as Facebook.	sharing their posts, liking them, sometimes PMing	Feel part of a larger community and also motivate me.
7	... for;; - keeping up to date with others working in ling-lang fields; - following up articles, blogs and papers of interest;; (I only use Twitter for ling-lang)	... because;; - I can connect easily with individuals and organisations working across the globe (especially useful as I have an interest in culture in the Efl classroom); - also, see above	... by;; - following only people working in ling-lang and following up posts of interest; - Tweeting about ling-lang issues	...to;; - access a broad range of perspectives and keep up to date on developments in the field
8				
9				
10	gaining / providing resources	easy, quick, worldwide connections (people & organisations)	interacting with other Twitter users (in chats)	Expectations (of usefulness)
11	sharing advice / help / opinions	less involvement	retweeting, following, liking tweets, Pming	Being part of a network / community
12	connecting with language professionals		reading their tweets	Keeping up to date
13	self-promotion	No use of Twitter as a professional learning tool	following up posts of interest	Sharing (experience, ideas)
14	professional / private use		searching for keywords	
15			following hashtags	
16	Twitter effectivity			

### APPENDIX 13: Figure 4.5. Relational cross-reading of data (example) (enlarged)

44:35: **ME**: OK, you just said that you feel close to the Slavic circle of language teachers. So, is that because of a linguistic closeness, a linguistic interest? ¶

44:50: **Hanna**: I'd say so, because I've never really travelled, apart from Croatia. It's like, it's the history, you know, and, eh, similar language, and just Europe, also geographic closeness. I know we have more to share than with a person from Canada. I'd say that's just too far away, and there are certain things they don't... that they will never understand. (45:25) Recently there's been this initiative, where people write about... teachers write about their identities, blog posts about their identity. And it got me thinking a lot about... something I'd never thought about, about identity, teaching identities and what forms you... ¶

ME

#### Martina Emke

Rhizomatic movement from tweets to blog posts; four blog post connected to @user's blog post (#webconf2016-host); Marc contributed own blog post; retweets of blog posts make movement between the blog posts possible; links to the #webconf2016-recorded-sessions-no-longer-available-to-IATEFL/TESOL-non-members-after-b/Dec-2017; ¶

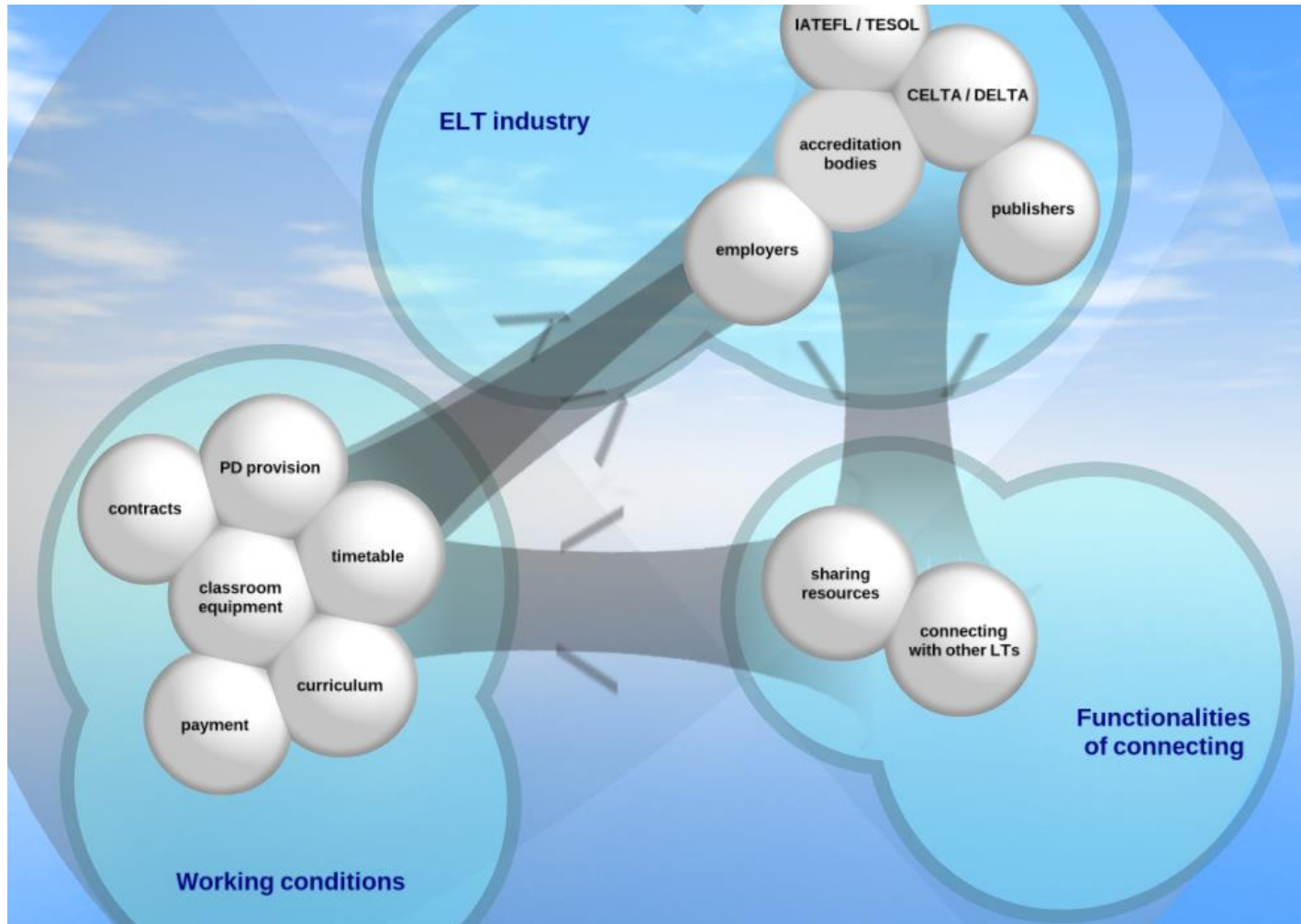
ME

#### Martina Emke

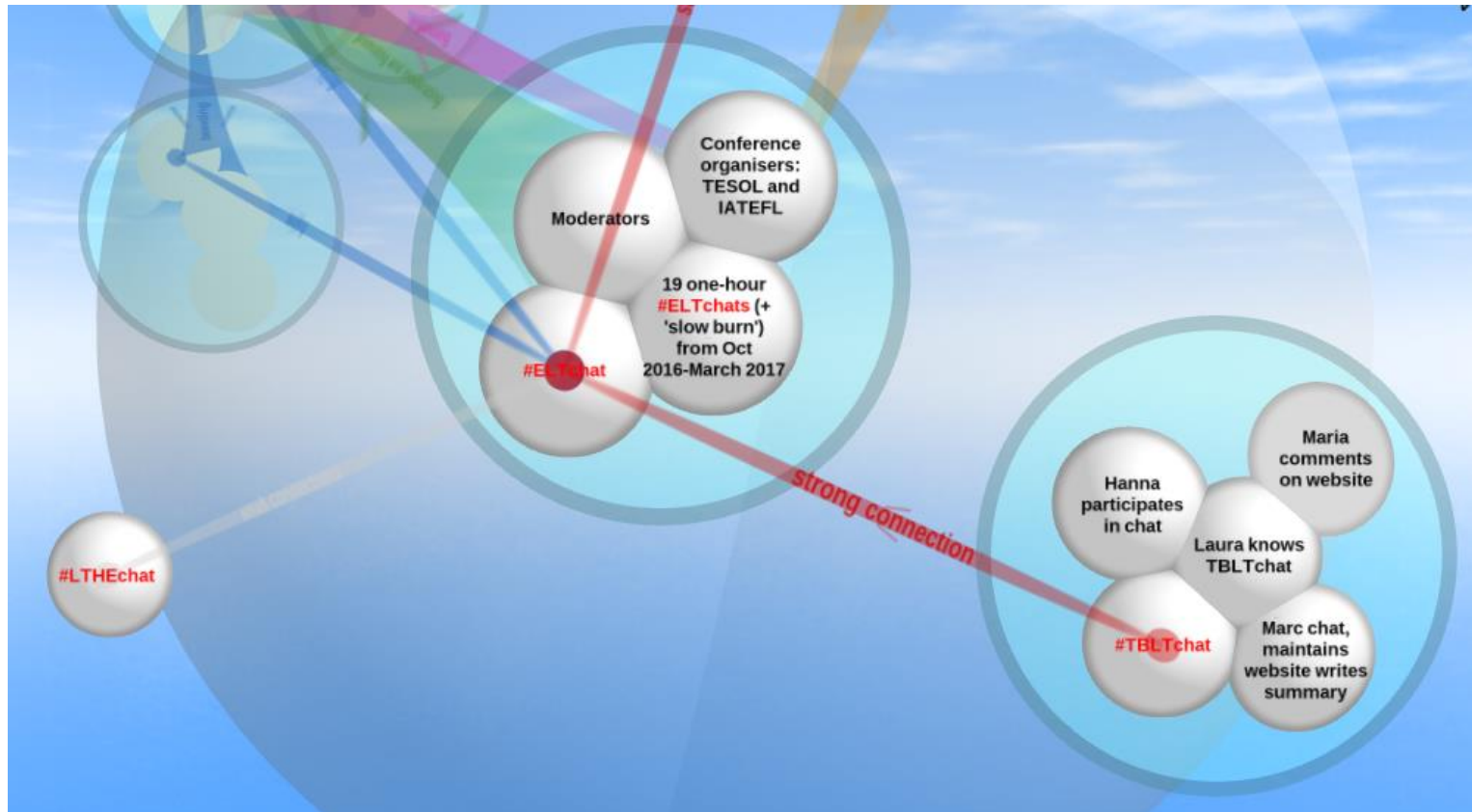
Reading the blog posts connected with Hanna's thoughts about identity and produced new thought; hashtag not mentioned! ¶



APPENDIX 15: Figure 5.2 Ordered situational mapping (enlarged)



APPENDIX 16: Figure 5.10 Network connections between #ELTchat and #TBLTchat (enlarged)





APPENDIX 17: Figure 5.13 Participants' connections with the web conference #webconf2016

