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Recycled teacher memories and upcycled teacher memories: categorising pre-service teachers' recollections of past teachers`

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The 'learner biography' is commonly used in teacher education to assist in the unpacking of schooling experiences. Although past teachers are often central in these memories, the educational benefit of these recollections for the student teacher's development is often dependent on how these experiences are recalled as they form the basis of further analysis and interrogation. Through an analysis of written learner diaries by pre-service teachers in Spain, this study aimed to explore how past teachers were recalled from a psychological, cognitive perspective. The study found that teachers were presented in a polarised manner as either 'good' or 'bad'. However, more significantly, analysis of the student teachers' descriptions indicate that some recollections were framed through subsequent theoretical perspectives acquired as part of their teacher education programme while others were not. A theoretical model to understand pre-service teachers' memories of teachers is outlined and its implications for teacher education are discussed.

Keywords: Pre-service teacher; teacher education; learner autobiography; autobiographical memory

Introduction

Developing pre-service teachers' abilities to critically reflect on their practice has been facilitated through many processes. One common aspect of this is to encourage pre-service teachers to explore their past schooling experiences (Harford and Grey, 2016; Chang-Kredl & Kingsley, 2014; Miller and Shifflet, 2016). This exploration of their 'learner biography' can enable them to examine how past experiences influence current beliefs (Uitto & Syrjälä, 2008; Haught, et al., 2015; Van Hook, 2002). Through this process, hidden assumptions of what constitutes 'good' teaching and how teachers should respond may also be unpacked (Furlong, 2013; Brookfield, 1995). Reflecting on past schooling experiences, including past teachers, has been a common feature of teacher education programmes for several decades (Fendler, 2003) and remains an important area in teacher education (de Lima et al, 2014). While other professions also examine 'lay theories' and stereotypes of their profession's roles, teaching is somewhat unique in that everyone has experienced a long period of formal schooling, the apprenticeship of observation (Lortie, 1975), and hence when one chooses to become a teacher it would seem important that one would reflect on past experiences of schooling as part of this learning journey – particularly to interrogate these influential experiences.

Notwithstanding the value of these autobiographies for pre-service teacher development, this paper argues that recalling and reflecting on past schooling experiences is not without its limitations as the manner in which one frames past experiences (and past teachers) can limit the potential professional insights one can gain from subsequent interrogation of these memories. Previous research indicates that past teachers are influential in the developing pre-service teacher's identity (Haught et al., 2016; Furlong, 2013; Van Hook, 2002; Weber and Mitchell, 1995) and while the authors recognise the value of reflecting on past experiences, we nonetheless argue that certain constructions of memories provide particular affordances whilst others can be

restrictive in terms of their potential for professional growth. The ability of teacher educators to distinguish these different constructions is beneficial in assisting pre-service teachers to interrogate these constructions.

Through an analysis of written accounts of their educational histories completed by pre-service teachers on a one-year master's programme in a Spanish university, this paper aimed to examine the recalled memories of teachers and explore how these teachers were presented. Based on these recollections of past teachers a tentative theoretical model is offered to explain the different recollections and the implications for teacher education of these different processes of recollection are discussed.

Autobiographical Memory

A significant body of research exists in the area of autobiography work in teacher education, particularly from the socio-cultural perspective and narrative inquiry tradition (Clandinin & Connelly, 1996; Britzman, 1993; Sumara & Luce-Kaplar, 1996; Freeman, 2007). Whilst recognising the importance of these traditions, this study adopts an alternative theoretical approach from the more psychological cognitive tradition of autobiographical memory as looking at the issue from this theoretical perspective can raise alternative perspectives and insights. Autobiographical memory is a term used in cognitive psychology to refer to the bank of episodic memories related to past experiences that is held by the individual. From the perspective of memory, stored events and experiences form the 'database of the self' (Conway and Pleydell-Pearce, 2000). These events and memories hold significance for the individual often containing key moments in one's development: stories of successes, achievements, failure and challenges that are the building blocks of the complex autobiographical self. Williams,

Conway and Cohen (2008) argue that these memories are an 'essential element of our personal identity' (p. 25). It is argued that the construction and maintenance of this autobiographical memory is dependent on the 'working self'. The working-self consists of a hierarchy of current active goals which determines the experiences to be encoded. As such, the working-self, according to Conway, organises current experiences, evaluating and prioritising what is to be remembered from the present dependent on its goal-relevance at that time. In this way, the 'working-self mediates the formation of memories' (Conway, Singer and Tagini, 2004, p. 504). Overtime these memories are then incorporated into the autobiographical knowledge of the self. Being central to one's identity, these memories are often critical memories that help to explain decisions or past experiences. For example, they are likely to contain 'self-defining moments' and 'turning points' which contain key knowledge on the progress of achieving personal goals and maintained to justify or explain life changes such as career decisions (Singer and Salovey, 1993).

Being highly constructed in nature, autobiographical memory draws on existing scripts and schemas for organisation. For example, one's autobiographical memory can be organised by 'lifetime periods' reflecting overarching goals and key stages of one's life, for example, 'my time in school'. These periods are frequently organised by existing schema and draw heavily on normative expectations associated with the lifetime period in question. They are hence influenced by social and cultural norms and can be quite abstract in nature. Conway et al (2004) highlights the adherence to these conventions;

The life-story schema consists of individuals' understanding of how the normative life story is constructed within our culture. This normative structure draws on social cognitive conventions with regard to temporal order, dominant themes, causal attributions, and evaluative stances toward experiences. It takes an individual's life as a whole and creates more general structures (e.g., my life

as a woman in 21st century England or my career as a professor at an American university) (p. 499)

These lifetime periods may also be maintained within the autobiographical memory as they hold significance in terms of one's identity. For example, these periods may reflect stories of recovery, redemption and overcoming adversity, that are particularly important in terms of self-identity.

As well as broader lifetime periods general events experienced may also play a key role in the maintenance of a coherent self and therefore specific episodes that play an important role in presenting a coherent conceptual self are also maintained. The preferential treatment afforded to these memories highlights the critical role they play in the construction of the 'self'. Similar to the constructed nature of lifetime periods and the influence of social and cultural norms (Williams et al, 2008), specific events can draw on existing 'scripts' that act as the organising framework for memories. Hence memories such as 'my first year in college' may be strongly influenced by a 'starting college' script that draws on socially accepted experiences and feelings one would expect with such an event but peppered with specific details of unique experiences added from personal experience.

When related to student teachers' autobiographies of schooling and the recounting of teachers as part of this process, several issues arise. The first relates to the highly selective nature of what is encoded (remembered) at the time of the experience (based on the working-self goal hierarchy). As the theory of the working-self highlights, student teachers will have been exposed to many different teachers in their past but only those that were deemed important and had relevance at that time of the experience will be remembered. Secondly, these highly selected memories are not static but rather they undergo a constant level of 'maintenance' being modified and edited based on the

individual's developing life story. The role these past stories of schooling, and teachers they were exposed to as part of this process, play in the life story of the student teachers will probably be more significant than others given their career choice. Hence what the student teacher now recalls about their schooling experience, and specifically about 'good' and 'bad' teachers, is not only influenced by what they initially perceived as 'good' and 'bad' teaching at the time of encoding. It will also be influenced by their emerging understandings of teaching and learning acquired in subsequent years. Recalled memories of schools and past teachers may therefore draw on prevailing normative scripts of 'good' and 'bad' teachers and be influenced by educational theory they have encountered.

Several studies have explored memories of schooling. For example, Wall, Sperling and Weber (2001) examined what people remembered of school, how their memories were distributed across grade levels and how many memories were social as opposed to academic. To explore the dominant memories, they conducted two studies in a University in the US - the first with 252 undergraduate students and the second with 264 students. In line with the existing literature the top four recalled memories tended to be self-defining in nature, they included sports games/achievements, academic awards, illness-injury-misfortune-embarrassment and relationships with peers. In addition, more social memories were reported rather than academic and more unpleasant memories were higher in salience. Similar recalled memories were evident in a study by Rothenberg (1994) where undergraduate and postgraduate students recalled events of successes, failures, humiliations, competition and fairness when asked to complete written essays on their memories. Again such studies point to the salience of such memories and their significance to the working-self goal-hierarchy at the time of encoding.

The role of past teachers in pre-service teachers recounting of memories is common in studies exploring past experiences (Chang-Kredl & Kingsley, 2014). Notably a common issue to emerge from this research is the frequency of memories involving past teachers (Furlong, 2013; Mitchel and Webber, Van Hook Haught et al 2016). These are normally presented in a polarised manner, being described as very good or very bad. For example, research by de Lima et al. (2014) of student teachers memories in Portugal found that in 45 % of the teachers described, at least, one was described as authoritarian and using physical punishment and 58% referred to other teachers as caring and gentle. Research has also found that positive teachers tend to have a long-lasting impact on students' memories (Haught et al, 2016) and that the positive strategies used by these teachers are also remembered (van Hook, 2002) as well as their qualities (Miller and Shifflet, 2016).

With these key issues in mind, particularly in relation to the selective encoding of original experiences and the subsequent re-framing of memories, as a result of newly acquired perspectives, this study aimed to explore how teachers were recalled by student teachers.

Methodology

Research context and student task

This research study collated the written diaries (learner autobiographies) of pre-service teacher education students on a second-level teacher education programme in a Spanish University. The diary task completed by the students formed part of the key tasks of a pedagogy module. This task was introduced at the beginning of the semester. Students were required to submit a short diary entry mid-semester to familiarise themselves with the task. At the end of the semester they submitted a more detailed diary/reflection in

light of topics addressed and discussed during the semester. The task in question asked the pre-service teachers to write an account of their time in education ranging from the earliest memories of school to more recent memories before entering University. The diary was required to outline the story of their educational journey through formal schooling, the experiences, emotions and learning situations they encountered. The students had full autonomy to choose the experiences they felt were relevant, for example, what motivated or discouraged them to learn etc.

These written submissions were open-ended in nature allowing the student teachers to freely recall their experiences of school. Completed assignments ranged from 1000 words submissions to larger 4000 words entries.

Participants

A total of 60 students were enrolled in the programme and from this a random sample of eighteen student submissions were selected and subsequently analysed. From this sample of 18, diaries that made specific references to teachers were identified. These tended to be submissions that described personal experiences in school that appeared to hold significance for the participants. Submissions that were limited to narrating, as a class diary, the events that happened during the module tutorials, were discarded. So too were recalled accounts that appeared to focus on how education had subsequently influenced their life journey without specific details of their schooling experiences or individual teachers. In many cases, the story that was told narrated, in one way or another, what had marked his or her life as a student, either positively or negatively. The narratives reflected feelings, emotions and rejection or approval of certain pedagogical practices and teaching attitudes.

Ethical procedure

In line with good ethical practice, voluntary informed consent was sought from all participants prior to conducting the study and permission was sought from students to include their work. This took place after the semester to ensure that the research was separate from the assessment of students and their related assignment. In reporting from the final sample of student diaries, pseudonyms are used throughout the reporting of the study to guarantee anonymity.

Analysis of student teacher diaries

Once collated the references to past teachers underwent a thematic analysis (Braun & Clarke, 2006) to identify the main themes emerging across all the diaries. These themes formed the basis of the initial presentation of the findings. However, subsequent analysis of the data was undertaken. Details of this method of analysis is presented in the findings chapter reflecting the chronology of the development of the study.

Findings

Overall recollections and polarising of teachers

Not surprisingly, when invited to recall their experiences of school, both positive and negative memories of school were recalled. In line with previous research positive recollections referred to enjoyment of learning, social interaction with peers and achievements whereas negative memories related to social isolation, embarrassment or difficult experiences (Wall et al., 2001). Common lifetime scripts and normative scripts related to overcoming challenges were also evident.

Looking specifically at their recollections of teachers, positive schooling experiences were frequently associated with teachers that they recalled. These positive descriptions appeared to provide an opportunity for the student teachers to present their

understanding of ‘good’ teaching. For example, similar to the work of Miller and Shifflet (2016) accounts of ‘good’ teachers emphasised teachers’ qualities such as ‘caring’, ‘kind’, ‘patient’ and ‘honest’ traits. Aligning with previous research findings by van Hook (2002) they also recalled teaching abilities. The ability to motivate students appeared to be important, for example Angelica described her History teacher as having, ‘dynamic classes that caught my attention’. Similarly, Alejandro described his ‘luck’ at meeting a science teacher who fed his interest in science;

[She] would become my favourite teacher ever. She was my science teacher. In this period I got my interest back. I loved animals and biology and she had lots of books and films that she used to lend me and I read and watched all of them.

Communication skills were also viewed as important. Marta described her favourite teacher as, ‘an excellent communicator and a very engaging person, full of energy too’, and when talking about her head teacher, Carmen described her as ‘very good at explaining and honest’. Other characteristics that appeared important were classroom control and management. Antonio described his science teacher as, ‘the only one that was able to deal with us, the students’.

In essence these descriptions of ‘good’ teachers appeared to draw heavily on normative scripts of teaching and learning that are prevalent in the wider public discourse rather than scripts more specific to the teaching profession. As a result, they tended to focus on personal traits (kindness, patience etc.), the ability to control students, subject knowledge and ability to motivate, as the following examples highlight;

Personal traits - “[name] was such a kind and patient woman and she used to smell very, very well ... she was so nice (Carmen)

Classroom control - I remember a good teacher of natural science that I had in secondary school in [place name removed] and was good because was the only one that was able to deal with use, the students (Antonio)

Motivation - as children she made us feel important people, telling us that there was nothing we couldn't achieve without effort (Ana)

Knowledge – The teacher tried to teach us English but he didn't know a single word of it, so it was quite disappointing to see him trying so hard (Cristina)

As well as using it as an opportunity to highlight what they considered to be 'good' teaching they also appeared to use the opportunity to highlight the characteristics of 'bad' teachers. Bad teachers were presented in a polarised way as opposite of the 'good' teachers. For example, they had poor content knowledge. Cristina believed her French teacher, 'didn't really teach us anything, it was always repeating the same content and that was really boring' and another teacher who 'didn't know a single word'. They also were not interesting to engage with. In exploring the evaluative statements that were used as part of the explanations there was a greater number of positive experiences with teachers than negative ones. Of the twelve participants identified as recalling specific teachers, a total of 60 individual memories of teachers were recalled and of these only 16 recalled memories of teachers referred to 'bad' teachers or teachers they had a negative experience of. For example, in describing a 'good teacher' Carmen noted that her teacher was, 'such a kind and patient woman ... she was so nice'. Whereas in describing a negative experience with a teacher Cristina recalled that her French teacher, 'didn't really teach us anything, he was always repeating the same content and that was really boring'. Therefore, in line with the work of de Lima et al. (2014) the pre-service teachers in this study also appeared to

present teachers in a polarised manner with the majority of teachers recalled being considered 'good' teachers.

In evaluating these past teachers, the student teachers appeared to use the opportunity to position themselves in alignment with positive practices. For example, having described a 'good' teacher in secondary school as, 'the only one that was able to deal with us', Antonio went on to state, '... from my experience I take that to be a teacher you can't be a dictator, you shouldn't make fun of your students but also that you can't be his friend'. These descriptions therefore also appeared to have a discursive function highlighting the importance of various skills or attributes such as the ability to manage pupils or being caring and supportive.

Recollections of teachers

The findings presented above align with previous research and hence are not surprising, however, it became apparent when analysing the recollections that the additional information provided about past teachers differed. Some, for example, appeared to draw on very specific memories that appeared to be strongly linked to the time of encoding whilst other memories appeared to have been subsequently re-framed. By way of an example, Carmen recalled a teacher that appeared to show aggression which frightened her as a child, 'when he got angry he was very aggressive. He used to hit the table and I remember being horrified'. This memory appears to be quite 'primal' in that the student teacher is almost taken back to the specific event (i.e. the time of encoding) as the details appear to have not undergone and subsequent revision. Recollections of the specific teacher's actions, 'he used to hit the table' and her own emotional state, 'being horrified' would suggest that this memory has not gone through any further revision.

On the other hand, other memories did appear to have been re-framed through subsequent experience. Raquel for example, in recalling her teacher, wrote;

Undoubtedly, today, I could say that she [the teacher] is the one I am pulling out the most. Very often I realize that concepts given in the university were implicitly seen in their classes (collaborative and cooperative work - creating groups according to our capacities or our interests), the Universal Design for Learning principle ... (Raquel)

Evident in this memory is a level of post-experience evaluation of the teacher, i.e. 'In those days' and 'I didn't realise'. Through more recently acquired understanding of educational theory the student teacher appears to reframe their teacher's practice, 'collaborative and cooperative work' and the 'Universal Design for Learning principle'. Therefore, looking at recollections of teachers in this way, namely according to whether they were memories of their direct experience of the teacher or whether it was recalled through subsequent evaluation of the teacher and their practices, a number of issues arose which will now be described.

The recalled memories appeared to draw almost exclusively on more original memories at the time of school with little subsequent evaluation. Of the 60 descriptions of teachers all but 9 could be described as descriptions drawn from their original memories with little evidence of any subsequent evaluation of the teachers recounted. For example, Cristina described one subject class as, 'really boring' (Cristina). In a similar type of recollection, Alejandro recalled one of his classes primarily from his own memory with little or no retrospective analysis or evaluation, 'That class was horrible, there were no funny people who could save me from those boring and non-interesting classes'. Carmen's memory of one of her teachers was another example, when

describing one of her teachers she claimed she was 'such a kind and patient woman. And she used to smell very, very well'. Most of these recollections appeared to be focused on the pre-service teacher's experience as pupils of the lesson in which the teacher taught. Negative emotions experienced included being bored, tedium, being horrified and being humiliated, 'the teacher was called Don Emiliano, an elderly man with a severe appearance who terrified us because he slapped the students at the first occasion he had' (Carlos). Whereas positive experiences referred to teachers that were amusing, fun, and teachers that made the pupils laugh or appeared to show affection and care to the students;

[teacher's name] was a caring lovely person who was quite patient with us when we didn't understand something (Cristina)

Many of these recollections recalled how teachers taught, for example, taking the pupils on off-site educational trips or encouraging discussion amongst the class. There were also several recollections of teachers that 'loved' their subjects and were committed to the pupils achieving academic success. In these memories descriptions of pedagogical practices were presented as unproblematic and relevant theoretical perspective were not utilised in the description or account of these.

A considerably smaller number of memories were categorised as memories that had undergone a level of reframing. These recalled memories of teachers, (9 in total), appeared to involve a level of evaluation/subsequent revision. For example, in recalling her early schooling experiences, Cristina described her teacher as, 'the kindest, most patient woman that I think I have ever met in my life. I remember her like she had this kind of maternal aura, because, in fact, she was like a second mother to me'. In recalling teachers that left bad memories, Antonio evaluated the teachers' actions from

his present understanding of pupil welfare;

[He was] chubby with a Franco's-age moustache, who ... used to mock the bad students. ... In those days this was so normal for all us that I didn't realize how humiliating and bad for 'the called bad students' should be.

A similar evaluation of a negative teacher was given by Ana. In this example, her early memory of the teachers is first recalled including details of her dress and sense of humour before then evaluating the teacher's pedagogical approach describing it as 'traditional' in nature;

Another teacher that marked my childhood has been "Profe Pilar," a woman nearly to be retired ... she was a traditional teacher, the book, notes, memory and boring exercises. He made us laugh but also we complain because she didn't give us time to do [complete] homework. The classes were always monotonous, the same, no matter if we taught the digestive tract or nervous system.

There appeared to be other occasions when the original memories were being questioned as a result of subsequent theoretical perspectives acquired. In the excerpt below Raquel initially recalls, what she describes as a 'lazy' teacher. However, towards the end of this excerpt she appears to be questioning her original evaluation of the teacher and wondering whether her approach was intentionally established to encourage a more social constructivist learning environment. This unresolved account may suggest that the new perspectives on learning is challenging original assumptions but that this is an ongoing process that is not resolved;

I remember a mathematics' teacher who was very lazy, she didn't care about anything. She relayed the whole weight of the subject on the students: it

explained things minimally and we had to dig up with the help of the book. She sent lots of homework, but she did not look at it, we had to autocorrect them, ... When there was some doubt (practically always) and you tried to ask her something, she used to say to us, 'look for someone in the group who has already understood it, and ask them to explain it to you'. According to her, in this way we would all be involved in the communal learning (everyone but her, I would say) ... looking for a partner to explain it to you, self-assessment ... were these characteristics of (social) constructivism? (Raquel)

In summary, the majority of recollections of teachers appeared to be recalled from their experience as pupils rather than from a pre-service teacher lens (using the educational theories from their programme). The following section firstly aims to provide possible explanations for the polarised presentation of teachers in the participants' recollections before then moving on to explore the way in which their memories of teachers were presented. As part of this, a tentative theoretical model is presented before exploring its implications for teacher education.

Discussions

As previously mentioned, one of the key goals of activating school memories in teacher education according to Miller and Shifflet (2016) is to 'negotiate the preconceived ideas acquired from their apprenticeship of observation' (p. 28) however it is worth considering whether the recollection of these memories is indeed an opportunity to challenge and critique their understanding of 'good' and 'bad' teaching. In exploring the student teachers' memories of teachers, it is apparent that past teachers were presented in quite a polarised way. All participants spoke of particularly bad teachers or particularly good teachers, thus confirming the work of other research such as de Lima

et al (2014). However, although they were studying a professional qualification in education there were few examples that drew on more complex understandings of pedagogy and learning theory. Teachers tended to be 'good' if they were prepared, could control the lessons and had good subject knowledge. Hence they appear to draw on traditional 'lay theories' of teaching (Sugrue, 1997) or shape their recollections through a normative life story (Conway et al, 2004) of schools and teachers. Other aspects seen as characteristic of good teachers included having caring and supportive personalities. We had anticipated that, since they had explored key pedagogical issues as part of the module and were enrolled on a teacher education programme, recalled experiences of teachers would be influenced to some degree by educational theories they had engaged with but this was limited – hence from the theoretical perspective of autobiographical memory there would be a level of reframing of their past memories (Conway and Pleydell-Pearce, 2000). In considering the possible reasons for these polarised memories a number of explanations are possible.

From the cognitive perspective of autobiographical memory (Conway and Pleydell-Pearce, 2000), the limited recall of educationally effective practices by past teachers may be because they were not exposed to them as pupils. On the other hand, it could also be the case that they were exposed to effective practices but did not encode them as such as they were not seen as important to the working-self goal hierarchy (Conway, Singer and Tagini, 2004). For example, a teacher using quite student-centred pedagogical approaches may be seen as innovative by other professional educators (that have the professional pedagogical knowledge to recognise the practice) but the same experience could be seen as 'boring' by the pupils. It may be therefore, that due to their limited understanding of pedagogy and their working-goal hierarchies at the time of the original experience, such practices did not come to the attention of the student teachers -

and hence were not encoded in their memories. Therefore, when asked to recall, they have a limited repertoire of teachers' practices and related memories to draw from as they only encoded experiences associated with extremely positive or negative feelings when engaged in school. Thus, this crude initial memory categorisation of 'good' and 'bad' teachers, possessed by the participants at the time of encoding can limit opportunities for future more elaborate recall of memory.

An alternative explanation may be that the absence of more complex assessments of past teachers' practices, that moves beyond simplistic polarised descriptions, may also be a result of limited opportunities to purposefully reflect on their schooling experiences and apply the recently acquired theoretical lenses.

A fourth explanation could be that, given the dominance of the 'normative scripts' of teachers that exist within society, the pre-service teachers have no reason to reconceptualise or re-frame their memories of teachers as their existing memories align well with these dominant cultural scripts of teaching. As Haugh et al (2016) note, 'distortion in event memories can occur because of socially transmitted information after the event' (p. 817). The dominance of this socially accepted view of the teacher may limit alternative interpretations and perspectives. It could also be that, mindful of the assessment requirements of the exercise, the pre-service teachers are cautious to 'stray' from dominant cultural scripts of teaching when it comes to critiquing past teachers' practices.

Having explored the potential reasons for the recollection of past teachers in a polarised way the following section aims to propose a theoretical model to explain the nature of the findings arising from the second stage of the analysis.

Towards a tentative theoretical model

We outlined earlier in the paper that one's recalled memories can undergo a form of maintenance and revision, being modified based on one's developing life story and the new perspectives one acquires through maturity and professional development (Conway & Pleydell-Pearce, 2000; Williams, Conway & Cohen, 2008). Surprisingly in this study the majority of memories of past teachers appeared to show no re-framing of memories and instead remain quite rooted in their original constructions. While we have offered some possible reasons for this in the previous section, as the sample size is small, and this study is more exploratory in nature, more research is required to explore this issue further. That being said, it appears that the recalled memories of the teachers in this study could be categorised into two types. The first are simply recollections of the experience (what we have called recycled teacher memories) whereas the second are re-framed recollections based on some subsequent professional insight or new pedagogical understanding (what we have called up-cycled teacher memories).

Recycled teacher memories are characterised as largely reflecting the original experience in that the description of the event tends to describe the event as seen through the person as they experienced it. They are quite visceral in nature and tend to recall the emotions experienced at the time of the event as well as the event itself. Unlike 'up-cycled' memories, there are limited, if any, subsequent analysis or post-evaluative aspects of the recollections from an educational/pedagogical/professional teacher standpoint.

Up-cycled teacher memories on the other hand appear to undergo a level of refashioning influenced by educational or pedagogical insights from their teacher education programme. As the term up-cycling implies, the original memory is reworked or transformed in some way. Normally through newly acquired insights, perspectives or learnings. These often shed the original memory in a new light from an educational

standpoint and move beyond a recollection of the original experience. While recognising that no memories are recalled from a neutral space and other personal insights can indeed influence the recollection of events, a key differentiation of upcycled teacher memories is that they draw on educational/pedagogical insights, as opposed to other insights, to re-frame the recounted experience.

Implications for teacher education

We argue that viewing student teachers' learner autobiographies through this lens of recycled and upcycled teacher memories has a number of benefits and applications in teacher education. Firstly, looking at memories in this way may be an indicator of the extent to which student teachers have reflected on their past experiences and the extent to which they have internalised and taken ownership of theoretical educational and pedagogical perspectives acquired in their teaching programmes. In speaking about pre-service teachers' memories, Chang-Kredl & Kingsley (2014) note that memories of past events are often recounted in ways that help us make sense of our current situations. Upcycled teacher memories appear to show evidence of this sense-making in action whereas recycled memories, undergoing little if any educational/pedagogical re-framing, do not appear to show evidence that the original memory of the experiences has been problematised or merits reflection. In addition, upcycled memories provide the student teacher with the opportunity to unpack their refashioning of their memories and explore why they may have 'upcycled' the memories in the manner in which they have. Upcycled teacher memories therefore provide greater scope for professional growth as they reflect the start of a professional conversation about the experience that can open a wide range of learning insights. This framework can also be used to help student teachers to further interrogate their interpretations and recollections of schools and in doing so deepen their levels of reflective practice.

Conclusion

This is a small-scale exploratory study and therefore any theory generated from the data should only be seen as a tentative step. More research is needed to explore this issue further, in particular the extent to which over time future recollections of past teachers are upcycled more as these novice teachers develop greater insights into their professional practice and acquire more lenses through which to view their past experiences. Further research could also explore whether the nature of the activity given to student teachers can facilitate more reflective recollections of past educational events (including teachers). Therefore, do some autobiographical tasks facilitate more recycling of memories than others?

Previously, it has been suggested that using learner autobiographies in teacher education is a way to help student teachers to explore how their past schooling experiences influences how they see teaching (Uitto & Syrjälä, 2008; Haught, et al., 2015; Van Hook, 2002). Yet this databank of experience is only as important as the potential reflections and insights pre-service teachers can gain from it. As this study has highlighted, not all the recounted memories have the same educational affordances. Some (recycled) memories show little, if any, reflection and post experience re-framing of the event. On the other hand, the upcycled teacher memories in this study appear to present the most fruitful opportunities for professional growth as their subsequent re-fashioning of the original memory provides ample material to interrogate and unpack in related tasks with tutors, mentors and peers (Pritzker, 2012). This tentative model we have put forward may provide a lens to help pre-service teachers and teacher educators to categorise recalled memories of past teachers to assist the subsequent reflective process. We argue that this lens may assist teacher educators in scaffolding pre-service teachers to move beyond binary and idealised views of past teachers to more

professionally fruitful conversations about teaching. As part of this process we argue that pre-service teachers should be introduced to the key concepts within autobiographical memory to help them to explore the working-self goals that may have been present at the time of encoding that led to the remembered experience and the influences at play that (re)fashion the recalled memory.

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