Transitions into teaching:
Experiences of career-change teachers in Singapore

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Abstract

This case study explored the experiences of 15 career-change teachers during their early transitions into their new profession. Data were collected from two interviews: the first at the start of a post-graduate diploma in education (PGDE) after a period of contract teaching, and the second after completing teaching practice towards the end of the PGDE programme. They were analysed using Clarke and Hollingsworth's (2002) Integrated Model of Teacher Professional Growth (IMTPG). The findings indicate that the research participants were active agents in the transition process and drew on qualities, experience and knowledge developed outside teaching. The IMTPG illustrates how reflection on the consequences of classroom application was a driver in their development as teachers and how they processed information and stimuli from various sources during the two phases: contract teaching and practicum. This study furthers understanding of career-change teachers by adding perspectives from the unique Singapore context.

Keywords:

career-change; initial teacher preparation; transition; IMTPG

Introduction

Research into career-change teachers

The recruitment of career-change teachers, the term generally adopted to refer to more mature entrants to the profession with other prior experience, is a worldwide consideration (Darmody & Smyth, 2016; Department of Education, Employment & Workplace Relations, 2013; Hart Research Associates, 2010). In some countries in the Asia–Pacific region, such teachers form a substantial proportion of the teaching work force. In Australia, for example, Crosswell and Beutel (2017) report percentages as high as 47 percent in the primary school sector, while in Singapore about a quarter of all teachers have worked in other areas before joining the profession (Yang, 2015). This study is set in a Southeast Asia, where the phenomenon of career-change teachers is little explored, and contributes perspectives from a different context.

Research into career-change teachers focuses broadly on four areas. The first is motivation (Anthony & Ord 2008; Laming & Horne, 2013). The main drivers of motivation identified are largely shared by all teacher recruits (Low, Ng, Hui, & Cai, 2017) and combine the altruistic, typically a love of children and /or a sense of vocation, with more pragmatic individual considerations. The second area of research looks at the personal qualities career-change teachers generally feel help them to succeed in their new profession. These include independence, determination, resilience and commitment (Castro & Bauml, 2009; Griffiths, 2011). More recent research
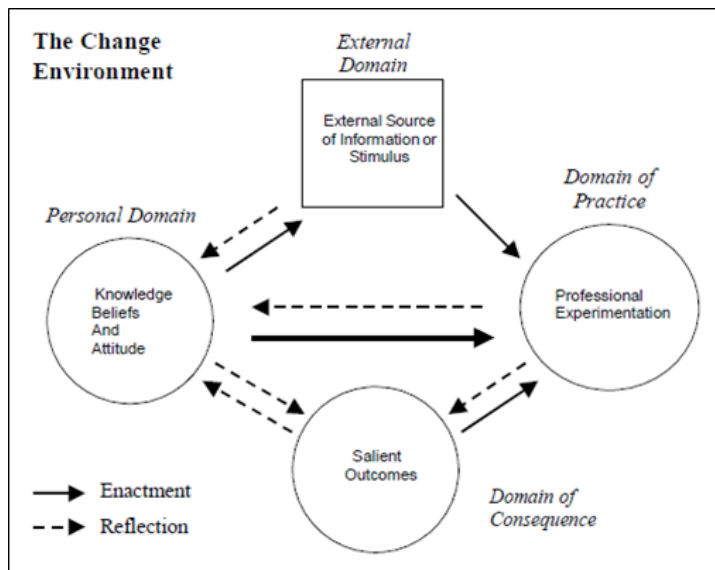
Figure 1. Clarke and Hollingsworth's IMTPG (2002, p.951).

(Crosswell & Beutel, 2017; Varadharajan & Schuck, 2017) shows resilience is a particularly important quality that supports teachers and may be a factor in teacher retention. Career-change teachers' experience in other roles contributes to their resilience. A third substantial area of research considers how career-change teachers use life and career experience, their "collective life wisdom" (Powers, 2002, p.304), in initial teaching contexts (Brindley & Parker, 2010; Peter, Ng & Thomas, 2011; Tigchelaar, Vermut and Brower, 2014; Watters & Diezmann, 2015). In Singapore, the Ministry of Education (MOE) views career-change teachers as bringing "something new to the classroom" and sharing "their wealth of knowledge from their previous careers with a generation eager to learn more" (MOE, 2017a), thus highlighting the value of this collective life wisdom. The final area addresses the training they receive (Bolhuis, 2002; Mayotte, 2003; O'Connor, Malow & Milner Bisland, 2011; Tigchelaar, Brouwer & Vermunt, 2010; Varadharajan & Schuck, 2017). These researchers broadly feel that training needs to be better tailored to the needs of career-change teachers and differentiated from that provided to direct entrants.

Career-change Teachers in Singapore

Most career-change teachers in Singapore move into teaching via a post-graduate diploma in education (PGDE) attended by both direct entry and career change applicants. The MOE recruits all prospective state school teachers prior to training and deploys recruits to schools as untrained teachers for at least six months before their PGDE. This compulsory stint as an untrained teacher, known as contract teaching, allows them to affirm their interest in teaching and the host school to assess their suitability (MOE, 2017b). Upon successful completion of their PGDE, MOE deploys the newly qualified teachers to schools. Previous research in Singapore into career-change teachers considered their motivations for career change (Chong & Goh, 2007) and perceptions of self-efficacy during the first year of teaching (Tan, 2012).

The Integrated Model of Teacher Professional Growth

To explore the complex process of transition that career-change teachers undertake and the way the four areas identified in the literature interact and contribute to the individual's professional growth, the researcher used Clarke and Hollingsworth's (2002) Integrated Model of Teacher Professional Growth (IMTPG) shown in Figure.1. The model was first introduced in 1994 and is based on elements of an earlier model by Guskey (1986). Embedded in the model is a theory of learning expressed in the idea of a "key shift in agency" with teachers viewed as "active learners" (p.948).

The IMTPG has four domains and allows exploration of how existing knowledge, beliefs and attitudes in the *personal domain* interact with external sources or stimuli in the *external domain,* and how these further interact with professional experimentation in the *domain of practice*. Clarke and Hollingsworth describe 'salient outcomes' in the *domain of consequence* as student related outcomes or changes in classroom practices that are "firmly tied to the teacher's existing value system and the inferences the teacher draws from (them)" (p. 953). The *change environment* is the context in which professional growth takes places, a context with its own "constraints and affordances" (p.950). The domains are linked through enactment, the carrying out of activities, and reflection. In the current study, the personal domain encompasses the experience and life wisdom career-change teachers bring to their new profession. The external domain includes both formal contributions from courses or colleagues and informal ones such as personal research reading. The other two domains show what the teacher then does in the classroom and the learners' responses. The change environment comprises schools, the training institution and the wider education environment of Singapore.

A number of researchers (Hung & Yeh, 2013; Justi & Van Driel, 2006; Van Driel, 2014, Wang, Kim, Wen & Kim, 2014) have used the IMTPG. They endorse its value, especially in terms of making growth and change pathways explicit. Van Driel (2014), for example, found the model "appears to make the often tacit and implicit change pathways explicit" and allows identification of "powerful elements within professional learning programmes" (p. 154). It allows exploration of the ways career-change teachers integrate what they bring to their training with what that training provides and thus provides teacher educators with valuable insights.

Those using the model have also identified some challenges, such as establishing the way in which professional growth rather than simple change is determined (Justi & Van Driel, 2006). The researcher adopted Van Driel's (2014) approach to determining complex patterns of growth, which require evidence

of more than one link in the model and the inclusion of impacts in the domain of consequence.

Purposes of the Research

The data were used to explore two research questions:

1. How do career-change teachers in Singapore draw on previously developed knowledge, beliefs and attitudes during contract teaching prior to their PGDE programme?

2. How do they integrate aspects of their training during their PGDE with previously developed knowledge, beliefs and attitudes and further grow as teachers during practicum?

Methodology

Study Design and Sample

A case study approach was chosen as it matched the researcher's purpose of seeking "a deep understanding of particular instances of a phenomenon" (Mabry, 2008, p.214). Two key features of case studies are that they are bounded in some way (Creswell, 2012) and tend to be exploratory, descriptive or explanatory (Yin, 2003). In this study, the bounded context was the immediate learning environment represented by the PGDE programme, the institution and the school. The purposes were primarily exploratory and explanatory.

Most students in the institution study for a PGDE and a significant proportion have had other career experience prior to their course. Self-selecting participants were purposefully sampled from a cohort of these students. After obtaining approval from the university's Institutional Review Board, the researcher presented her project to the cohort and asked for volunteers who had worked in other fields and were over 30 years of age (to ensure substantial other experience). Fifteen individuals, comprising nine women and six men, agreed to

participate in the study. Generally, these individuals had completed 18 months of contract teaching prior to joining their PGDE.

Data collection

Interviews are particularly helpful when determining decision-making processes and "the meanings that people attach to their experiences" (Harding, 2013, p.22). In this study, each volunteer attended in two audio-recorded interviews of about 45 minutes in length. The first took place during the first few weeks of their PGDE and focussed on their career background, their views about teaching and their experiences during contract teaching. The second took place towards the end of the PGDE, after a 10-week practicum and addressed their experiences during the taught phase of the programme and practicum. The interview questions drew on those used in other case studies on career-change teachers, in particular the work of Mayotte (2003), but were adapted to reflect the two phases of contract teaching and the PGDE, and to align with the IMTPG framework. To triangulate the data, the participants also shared their written teaching philosophy statements with the researcher after the first interview and brought artefacts from their practicum (lesson plans and materials) to the second. Interview transcripts were member checked and all data were rendered anonymous and pseudonyms assigned.

Data Coding

Data coding included both *a priori* and emergent codes. The *a priori* coding derived from Justi and Van Driel's (2006) coding for the IMTPG. As the current study comprised two phases, two parallel sets of codes were developed (Appendix 1), the first for the contract teaching phase and the second for the PGDE including practicum. The researcher and two colleagues evaluated and refined emergent codes collated during initial analysis of the transcripts. To ensure a common understanding of their application, all three trailed both the *a priori* and emergent codes using sample transcripts. *Nvivo* software helped facilitate the retrieval of coded text for analysis.

In this study, the domains in the IMTPG are:

- The *personal domain* first refers to elements from previous experience. It expands between the two interviews to include knowledge and practices developed during contract teaching;

- The *external domain* refers to various inputs from NIE courses, reading, school contacts etc.;

- The *domain of practice* is the classroom during contract teaching and then practicum;

- 'Salient outcomes' in the *domain of consequence* focus on the inferences that the developing teacher draws from classroom outcomes, and insights or changes in practices resulting from these;

- The *change environment*s are the schools in which the participants worked during contract teaching and did their practicum, NIE and the wider education environment in Singapore.

Findings and Discussion

This section reports and discusses findings from the two phases of the study. All accounts of participants were in quotes and pseudonym are used to identify the response.

Contract Teaching

A first finding was that the move into teaching was carefully considered and that the motivations, particularly 'pull factors' (Anthony & Ord, 2008), expressed by the study participants reflected those of career-change teachers in other contexts and indeed teacher recruits generally (Low, Ng, Hui, & Cai, 2017). They were largely altruistic: wanting to find something meaningful to do and wanting to give back to society. 'Push factors' included dissatisfaction with current employment and a desire for a better work-life balance. While this finding may not offer new insights, it suggests a commonality between this

study and other research into career-change teachers.

Further findings refer to the IMTPG. The first domain in the model, the personal domain (PD), encompasses the elements the participants brought to the new environment, the motivations mentioned in the previous paragraph, their character and life experiences, which included their career experiences, their own school and learning experiences, and their beliefs about their students and the role they would perform as teachers. Most taught a range of subjects and classes, and some were made from teachers early in their deployment. All had survived what they viewed as a challenging induction. Their survival was largely due to a range of personal qualities they had developed over the years, their high levels of agency and life experience that included previous careers and often parenting. "It's not just banking itself, it's everything …. , including my children, that has changed me " (Iris [psuedonym]).

Experiences in all the other domains affected the personal domain. In particular, during contract teaching, the participants' beliefs about teaching and their attitudes towards their students changed, with some reporting gains in personal qualities such as greater self-confidence and patience. Many recalled being shocked when they found that today's schools and students were very different from their expectations, "I was in a culture shock, I think. Because I didn't expect that it's going to be so different from when I left" (Faridah). This realisation was the greatest catalyst for change and growth during contract teaching. They found that teaching was not as they had anticipated and, as a result, had to come to new understandings of their roles as teachers and adopt practices that reflected these understandings. Shaza, for example, came to see herself as "somebody who conveys knowledge but, at the same time, someone who bothers about, who cares about them [her students]" and felt her role was "more of a motherly figure, in that way."

During contract teaching, the second domain, the external domain (ED), is dominated by informal input from colleagues, more formal input from being observed and from observing others, and input from other resources, particularly the internet.

Although colleagues and senior staff with specific responsibilities for contract teachers provided some of the input, much was due to the participants recognizing a need and seeking help, "[I] approached everybody, just randomly approached" (Rose).

The autonomy and sense of self the participants had developed in previous roles underpinned their resilience in a challenging context and their willingness to seek support through various avenues, while their well-developed communication skills helped them manage and promote relationships. Penny, for example, felt that her skills from customer service and marketing helped her consider others' points of view; "try to sympathize or empathize with them" and that such skills helped her "get along with parents and new colleagues". However, despite their self-reliance and resourcefulness, systematic support seemed lacking in the external domain and was something the participants would have welcomed.

The domains of practice and of consequence (DP and DC) centre around classroom management and the socialization of individuals, content related practice and teaching administration. The personal domain and external domain immediately influence these two closely linked domains. A major growth pattern during contract teaching stemmed from the participants observing and reflecting on the consequences of their practice and subsequently changing that practice in what some described as a 'trial and error' approach, "I really had to use my kids as guinea pigs to try out different strategies and different styles" (Penny). Initially practice reflected what the participants brought to their new career from the personal domain and, in particular, their beliefs about children and teaching that largely derived from their own experience. The consequences were classroom management problems and disengaged learners. Reflection on such issues and the development of different approaches or the adoption of ideas from the external domain, processed through the personal domain, resulted in changes in practice and better outcomes. All this then crystalized and gave rise to the attitudes and beliefs the participants brought to their PGDE.
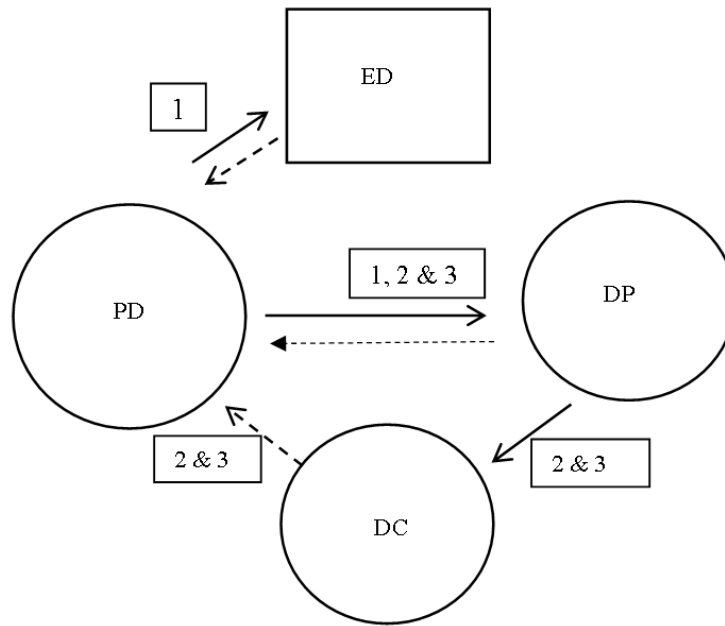
Figure 2. Iris's Network (contract teaching).

Two patterns of growth predominated as shown in the following examples.

Iris's account (contract teaching).

Iris's network (Figure 2) demonstrates how she drew on her life wisdom when approaching classes during contract teaching. It also demonstrates autonomy in approaching others in her environment for help.

(PD-DP-PD) In her first interview, Iris frequently referred to herself as a 'mummy' to her pupils. Although she found dealing with behaviour problems was challenging and took a lot of patience, she felt her experiences with her own children and with different people at work meant that she knew "how to react in certain situations". This is a link from the personal domain to classroom practice but also with a reflective link back to the personal domain because she also noted that sometimes she could recognise a problem, but not know how to address it. (PD-ED) In such case, she sought help from colleagues and observed, "how they handled certain kids". This sense of approaching and learning directly from others is a frequent theme in Iris' account and that of many other participants.

(PD – PD – DC – PD) Many of the participants drew on their own school experience as they started teaching, but contract teaching gave them valuable insights into pupil behaviour today. Iris, for example, commented that although she was still using her ex-teachers' approach of being strict and getting pupils to listen, contract teaching changed her expectations, realising that children today would not simply listen, teaching was more about convincing them.

(PD-DP-DC-PD) One way she did this was to bring real world issues into the classroom. With reference to Maths lessons, she talked about showing pictures of buildings to introduce the idea of angles and about introducing discount rates through the idea of shopping. She commented "I realised they got hooked" by such examples but that, when she returned to what she described as her "delivery man" approach, she lost them again.

Faridah's account (contract teaching).

During the first interview, Faridah chose reading as something she found effective from her contract teaching. She explained how she used her beliefs about reading, resources from the external domain and her students' responses to develop her teaching in this area (Figure 3).
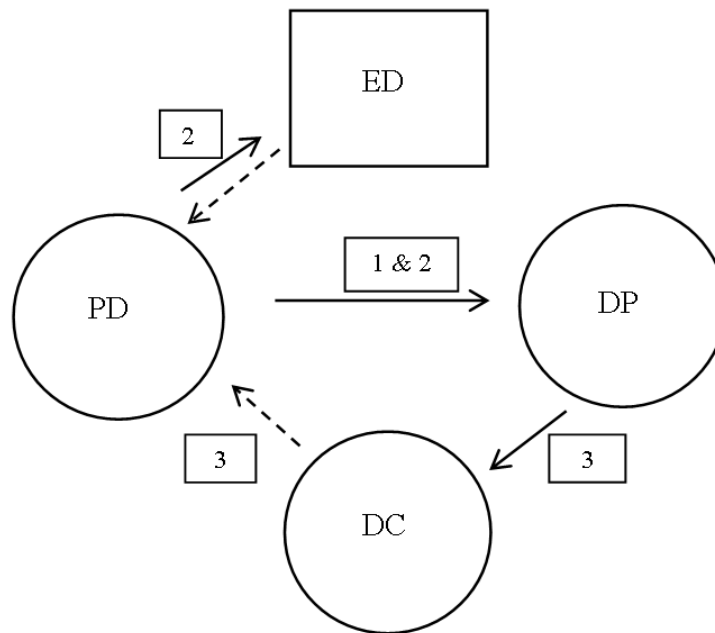
Figure 3. Faridah's Network (contract teaching).

(PD-DP) Faridah explained that she wanted to introduce non-fiction texts as part of her reading programme because she felt that exposing students to such texts from young would make them more willing to read non-fiction later instead of thinking reading in English was "just about fairy tales". This shows how her personal beliefs affected choices in the domain of practice.

(PD-ED-PD-DP) To motive the children, she modelled her teaching on approaches from other countries she found in videos on the internet, "they are very expressive, they have puppets, they have props". This is an impetus sought in the external domain, evaluated and applied in the domain of practice.

(DP-DC-PD) She found that the students enjoyed her reading, and that, when they read, they copied her expressiveness, something she found "very interesting". This is an impact from practice on outcomes, in the form of more expressive reading on the part of the students, and as the teacher learning from these outcomes as confirmation of her views.

Despite the difference in content, these two accounts reveal similar networks when mapped on the IMTPG. This kind of network, largely focussed on the classroom but drawing on self-initiated external resources, was prevalent in the participants' accounts.

Ken's account (contract teaching).

Not all the participants' accounts included reference to stimuli from the external domain. Some reported working things out for themselves. For Ken, for example, working things out for himself contributed to the development of his teaching philosophy. His network is shown in Figure 4.

(PD-DP) Ken brought his previous experience to a school that was "a recipient school for children with special needs" where he was initially "quite fierce". (DP-DC) He noted that this approach did not work with one student "who used to make a lot of noise" in class.

(DC-PD-DP-DC) Realising his approach was not achieving what he wanted, he changed it, attributing the change to a "paternal instinct". He started to show more concern and was surprised at the positive impact on the student's behaviour.

(DC-PD) This and similar incidents resulted in his teaching philosophy of "to care, to share, to cultivate", which developed during contract teaching.
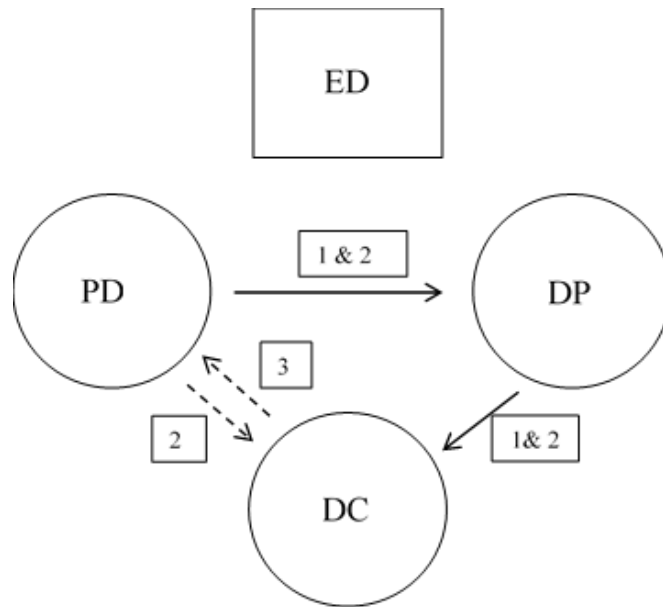
Figure 4. Ken's Network (contract teaching).

The type of network illustrated in Ken's account occurred in those of a number of participants. In Ken's case, it shows professional growth driven by his ability to reflect on the consequences of his initial approaches and his drawing on resources in the personal domain. It also shows how Ken's experience translated into theory building as he developed the philosophy that would guide his later teaching.

Career-Change Teachers and Contract Teaching - Discussion

The first research question asked how career-change teachers in Singapore drew on previously developed knowledge, beliefs and attitudes during contract teaching prior to their PGDE programme. During this initial period as an untrained teacher, all the participants felt they had changed and grown and, in all cases, the IMTPG revealed complex growth networks (Van Driel, 2014), particularly in the areas of pupil management and content-related practice, though there were few formal stimuli from the external domain. The participants demonstrated how they drew on previous experience, particularly parenting-type experience, and personal qualities such as resourcefulness or patience during this period. Their accounts reflected more the collective life wisdom found by Powers (2002) than solely the transfer of previous career

experience. In terms of qualities, they demonstrated a great deal of the resilience that others (Castro & Bauml, 2009; Crosswell & Beutel, 2017; Griffiths, 2011; Varadharajan & Schuck, 2017) have consistently found important. They were quite autonomous and able to cope in a context where there was little access to formal support. Initially they brought to contract teaching beliefs about teaching based on their own experience as school students but found their expectations overturned. They felt contract teaching was "pretty enriching" (Candice), "a good experience because it was a very realistic view of what is really in teaching" (Sally). It helped them overcome their 'reality shock' and learn what children and teaching today are like. They learned school routines and tried out approaches to content and to managing classes.

Contract teaching therefore seemed to provide the induction period Tigchelaar et al. (2010) recommended as a way of establishing whether teaching was a suitable career and of diminishing the "reality shock, feelings of disenchantment and accompanying obstacles in workplace learning" (p. 175) faced by participants in other studies. It added dimensions to the resources and attitudes in the personal domain that the participants then drew on during practicum.

Post-graduate Diploma in Education

This section considers how the participants integrated aspects of their training during their PGDE with knowledge, beliefs and attitudes developed before and during contract teaching. It explores their further growth as teachers as reflected in the practicum component of their programme.

At the end of the first interview, the participants talked about their expectations of the PGDE programme. Ken summed up these expectations particularly succinctly, "content, pedagogy and connections – possibly these are the three main things". In the second interview, they described the extent to which such expectations had been fulfilled. Responses about the taught elements of the PGDE programme were characterized by a broad agreement that that they had learned "how children learn or how learners learn" (Ken), had been "exposed to learning styles, teaching styles" and were "more aware of these in the back of our mind" (Iris), and that the course was helpful "especially pedagogy-wise" (Candice).

Participants felt some courses formed "a bridge between the theories and the practical things we can use in our classrooms … so I find that was rather useful" (Martin). They commented, however, that other courses addressed approaches rather than application, though some noted that acquiring a complete understanding was a longer term project and that "everything else would be experience" (Faridah). While expectations about learning about pedagogy were largely met, tempered with realism about what could be achieved in a short time frame, expectations about learning content were not always fulfilled. "I realise that in the course they don't actually teach that much content, it's more pedagogy of how you teach certain things and they actually expect us to go and read up on our own" (Ken).

Building networks did not emerge explicitly from the second interview, but examples of interaction and support showed the participants established connections with peers and academic staff. One aspect of this was the endorsement of joint courses for career-change teachers and those proceeding directly from degree programmes. Course colleagues, both career-

changers and their younger counterparts, became a source of external stimuli in sharing subject content knowledge and teaching approaches. This continued during practicum with "*Whatsapp* flying around" (Martin) when they experienced issues especially with content knowledge. They also viewed a joint course as a way of socializing themselves to their new career context, "I don't want [a separate course] because that will keep you apart from understanding what the younger teachers are. You are going to go in together so you might as well be thinking alike with them" (Rose).

During the 10-week practicum, cooperating teachers (CTs), teachers whose classes the participants observed and taught, provided the greatest external stimuli for learning and growth. CTs observe trainee teachers informally throughout practicum and conduct the majority of formal lesson observations. They had far more influence on the participants than supervisors from the institute who conducted just two of the six official lesson observations. CTs helped the participants with their lesson planning, showing them how to make lessons flow, pace them, pitch them and introduce a variety of activities to engage students. Broadly, the findings showed the CTs' positive influence with some hints at a paradox reported by a number of participants. This paradox was that, while practicum was supposed to provide opportunities to practice and learn, CTs sometimes restricted experimentation due to their own or school-based contingencies. When tensions arose, however, the majority of the study participants felt their good communication skills meant they "could handle their [CTs'] expectations fairly easily" (Joel) and deal with any inter-personal issues. Other previously developed skills also helped during this period. Iris for example, while claiming that her previous job was "purely administrative, nothing educational", recognised skills gained in her job transferred to the planning and implementation of lessons. Rose was equally clear that her "attitude towards people really came from [her] previous job". This job also gave her "a knowledge of technology, computers, using *Excel* spreadsheets" which helped her in school when "allocating students or even collecting results or data".
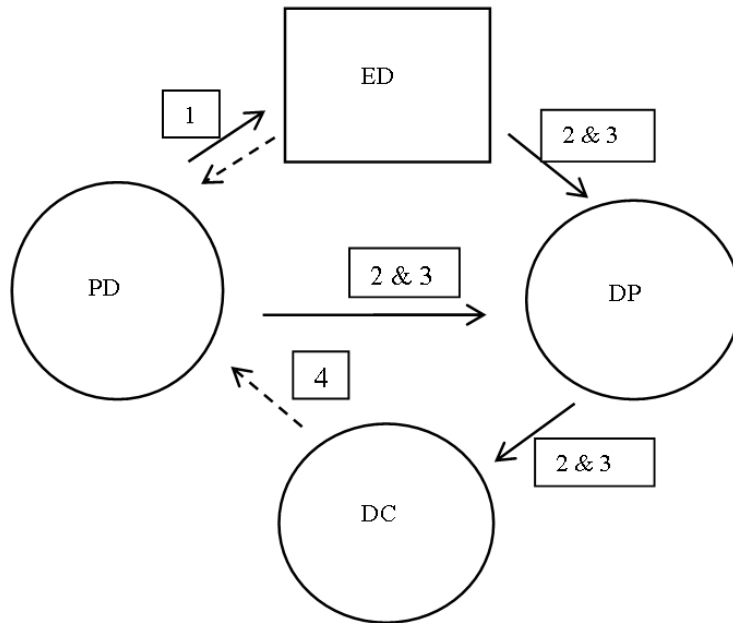
Figure 5. Iris's Network (after practicum).

Growth During Practicum

Two examples illustrate how growth took place during practicum. The first returns to Iris and the theme of pupil management. The second follows Faridah as she extends her understanding of the teaching of reading. The accounts of all the participants after practicum showed impacts from the external domain and the two examples are representative of the way in which the PGDE stimulated and supported their growth as teachers.

Iris's account (after practicum).

Iris's network (Figure 5) shows how increased understanding of students and their needs resulted in professional growth. The example shows her implementing a teaching approach, differentiated instruction, she knew about before her PGDE but which, at that time, she "didn't dare carry out". She also described approaching a problematic child in a new way.

(ED-PD) Iris felt that being exposed to different "learning and teaching styles" during the PGDE meant that she would "no longer classify [problematic groups] as naughty kids, straight away" because she had a better understanding of the causes of such behaviour.

(PD-DP/ED-DP) With a better understanding of children's behaviour and their needs, and the knowledge NIE had given her, she took the initiative to approach her CT to suggest using a differentiated approach with a practicum class. This is an example not only of the application of stimuli in the ED but also the willingness of the participants to take the initiative, something the researcher had noted characterized their approach during contract teaching. (DP-DC) While differentiated instruction helped, she noted that it did not resolve all the issues she faced. For example, there was one particular child with special needs in her class and she realized that she needed to take a different approach with him.

(PD+ED-DP) The "soft method" she then implemented drew on three resources, contract teaching, motherhood and a module at NIE, demonstrating how multiple sources in both the personal and external domains impact practice. (DP-DC) Her approach worked and he was her "most improved child", one who was more engaged and happier, and who responded to differentiated instruction as a result.

(DC-PD) From the improvement in one child, she understood that "all these [resources] accumulated"
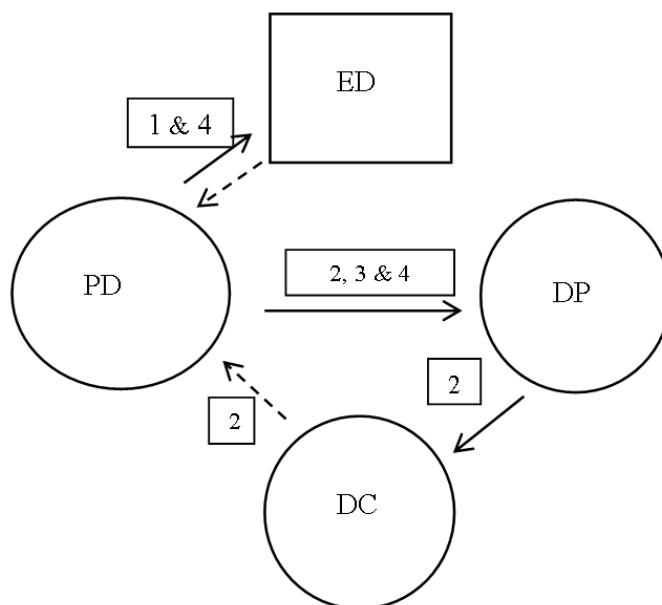
Figure 6. Faridah's Network (after practicum).

and that she needed continue to apply such approaches. Thus, the consequences of experimentation in the domain of practice affected both her understanding and her intended future practice.

Iris's account shows how the taught phase of the PGDE helped her understand students better and gave her knowledge of approaches that met their needs. In her own words, it helped her shift her perspective of being a "delivery man" into that of a teacher and to recognize that there were, "more changes I have to implement in my own classroom". It also reflects the way the participants drew on multiple resources from both the external and personal domains during practicum to address issues and how they then reflected on outcomes deepening their understanding.

Faridah's account (after practicum).

During the second interview, Faridah returned to the topic of reading and re-iterated her belief in its importance (Figure 6).

(ED-PD) Her belief was now confirmed by the institute's focus on promoting reading, showing how inputs from the external domain interacted with previously held beliefs, not to change but to consolidate them.

(DP-DC-PD) Faridah talked in her first interview about reading non-fiction and in the second about bringing a non-fiction book to her class to encourage students to go to the library and research topics of interest themselves. She reported a positive outcome and said, "I hope I motivated them to read more for English" as a way of improving knowledge and vocabulary. As in her first interview, she talked about making reading enjoyable and about integrating it into other subjects because "we don't want the children to think, oh only for English you read".

(PD-DP) She continued to view herself as a role model, "perhaps when they see me read, they will think how come Mdm Fa can read so nicely and enjoy her reading … so I think role modelling is important. Even for Science, we try to encourage reading" enacting this belief in the domain of practice. Such comments are a very good reflection of the way the basic views of many participants essentially remained constant.

(ED-PD-DP) However, in her second interview, Faridah contrasted her approach during practicum with contract teaching, during which she had questioned guidelines for a literacy programme advocated in Singapore. During the PGDE, she learned how to implement shared book reading and

why, and commented "so now I think I understand the steps, why we have to follow the [ ] guidelines" and followed them closely. This shows how stimuli from the external domain influenced understanding and, as a result, practice. She commented that previously she "didn't know there were all these steps [in the teaching of reading]" and definitely could not have acquired such knowledge from her previous job in engineering.

Faridah's account illustrates how, while her basic philosophy about the value of reading remained unchanged, her ability to enact that philosophy did. Furthermore, her belief strengthened due to institutional endorsement of the importance of reading. She continued to be quite self-reliant and innovative in her approaches, but increased her understanding of how reading is taught in Singapore.

Career-Change Teachers after Practicum - Discussion

The second research question explored how the participants integrated aspects of their training during their PGDE with previously developed knowledge, beliefs and attitudes and then further grew as teachers during practicum. The key finding seemed to be that, while contract teaching started to change the participants' views of what being a teacher involved and helped them develop a philosophy of teaching, the PGDE gave them deeper understanding and, most importantly, the tools they needed to enact their philosophies. During the taught phase, the tension observed by researchers such as Lee (2011), O'Connor et al., (2011), and Schwab (2002), between the need to prepare teachers with appropriate theoretical understanding and their call for more practical experience and support, is evident.

Throughout the PGDE programme the kinds of qualities cited by others such as independence, determination, resilience and commitment (Castro & Bauml, 2009; Chong & Goh, 2007; Crosswell & Beutel, 2017: Griffiths, 2011) continued to be evident. Maintaining good relationships with others, in particular with the CTs whose classes the participants taught and with whom they had the greatest interaction during practicum, was critical. The participants attributed their good interpersonal skills and ability to

deal with a range of others in the new environment to their previous life and career experiences. Skills such as the ability to plan and organise work commitments and use technological tools also helped them with practicalities in their new profession. However, a notable absence from accounts both during contact teaching and practicum was the integration of the "wealth of career-based knowledge" desired by MOE (MOE, 2017a). One explanation could be that the participants were deployed to primary schools and did not see its relevance. Another possible explanation is that the participants tended to focus on knowledge related to their new career and immediate application needs. This focus on 'new horizons' was also noted by Tigchelaar, Brouwer and Korthagen (2008) in relation to teacher educators.

The finding that the participants appreciated training alongside their younger peers contrasts with a call for tailor-made courses for career change teachers (Mayotte, 2003; Tigchelaar et al., 2010; Varadharajan & Schuck, 2017). The differences in perception about the need for tailor-made courses compared to findings in other studies might be explained by the participants having worked with younger people during contract teaching or their experience of useful sharing opportunities on the PGDE, such as microteaching.

During contract teaching significant learning took place, but growth networks indicated that it often derived from the participants' observations and reflections. Most of the stimuli during practicum, in contrast, derived from the course or from CTs and others in school. Input from CTs was vital and reflects findings from O'Connor, et al (2011) about the primary role of classroom teachers during this period. Participants' comments about the acceleration of learning during the second phase would seem to highlight how structured training and support stimulate change in contexts where some induction, here in the form of contract teaching, has taken place.

IMTPG as an analytical tool

Clarke and Hollingsworth's (2002) model provided an effective lens for exploring the development of the participants during contract teaching and the more formal practicum period. In this

study, the IMTPG functioned primarily as an analytical tool to explore patterns of growth in detail and to explain observations. Complex growth networks (Van Driel, 2014) seemed to dominate, but predicting that such patterns of growth exist for all career change teachers is probably too great a generalization based on the limited data.

Implications for policy and practice

This section suggests three implications for policy and practice.

Firstly, this study highlights the importance of contract teaching. The significance and length of contract teaching indicate that supporting experienced novices even before they reach their PGDE is critical. Other studies (Mayotte, 2003; Salyer, 2002) have raised the issue of support for career-change teachers during their initial time in school and this study similarly suggests the need for relevant, and possibly differentiated support, during any pre-certification teaching period.

Secondly, given CTs play such a vital role during practicum, developing their understanding of the needs of career-change teachers, and how these needs may differ from those of others in their care, will enhance the support they offer. Training could help increase awareness of the competencies and skills that readily transfer from other careers to teaching and where transfer needs mediation. This training could also address ways to foster MOE's aspiration that career-change teachers bring their workplace experience into the classroom. Similarly, teacher educators should encourage course participants to reflect on how previously developed knowledge and practices transfer to teaching both during taught courses and when supervising practicum.

Finally, although the findings in the study endorse the training of career-change teachers alongside their younger counterparts, there is a possible need to differentiation in designated areas. For example, one could envisage some of the study participants being exempt from communication skills courses, based on their career experience, in favour of content courses in areas with which they are less familiar.

Conclusion and recommendation

The participants in this study exhibited the complex and nuanced motivations behind the move into teaching reported by previous researchers in other contexts. However, they also experienced an extended period of teaching as untrained teachers prior to formal training. Analysis of the two phases helped illustrate how transition from one career to another is realised.

Two main sets of resources from the personal domain predominate during contract teaching: expectations about the job based on their own experience of schooling, and qualities that helped them cope with the challenges they faced when the first set of expectations proved unfounded. Personal qualities and mind-sets developed in previous work and life, in particular parenting experience, supported growth during contract teaching. While the participants drew on their rather limited access to help in the external domain during this period, a major source of learning was the domain of consequence and the cognitive ability and reflective dispositions that allowed the participants to learn from experimentation.

The qualities developed through careers and life and overall maturity continued to sustain these career-change teachers throughout the PGDE programme. Interpersonal skills were also crucial to dealing with a range of others in the new environment, especially managing important relationships with CTs, whose key role became apparent in this study. Training accelerated their growth as teachers and there was a greater impact from formal sources during this period.

This study provides valuable insights into transition in a Southeast Asian context and suggests some implications for policy and practice. However, the process is not yet complete. The researcher hopes to conduct a follow up study once the participants are fully established members of the teaching community.

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Appendix 1

Criteria for Establishing Relationships in IMTPG in this study

Relationship	Criteria for establishment
From PD to ED	When a specific aspect of teachers' previous knowledge (from previous career incl. competencies, beliefs, classroom experience etc.) influenced what they learned from sources outside the immediate classroom/teaching process, eg advice from another teacher.
	When a specific aspect of teachers' previous knowledge (from previous career incl. competencies, beliefs etc.) influenced what they said or did during ITP incl. practicum.
From ED to PD	When something that was done or discussed in school (eg. advice from another teacher, a mentor) modified teachers' initial knowledge, beliefs etc.
	When something that was done or discussed during ITP (eg. on one of the taught courses, advice from CT/SCM) modified teachers' knowledge, beliefs etc.
From ED to DP	When something that was done /discussed in school influenced something that occurred in their teaching (in class/preparation/ in relation to students) but not mediated by evaluation.
	When something that was done / discussed during ITP (eg. on one of the taught courses, advice from senior staff) and the teacher tried this in class but not mediated by an evaluation.
From PD to DP	When a specific aspect of teachers' knowledge influenced something that occurred in their teaching (in class/preparation/ in relation to students.
	When a specific aspect of teachers' knowledge from previous careers/contract teaching or the PGDE influenced something that occurred in their teaching (in class/preparation/ in relation to students).
From DP to PD	When something that teachers did in their teaching modified their previous knowledge.
	When something that teachers did in their teaching modified their previous knowledge.
From DP to DC	When something that teachers or their students did in their teaching practice during contract teaching caused specific outcomes.
	When something that teachers or their students did during practicum caused specific outcomes.
From DC to DP	When a specific outcome (see previous) made teachers state how they would modify the associated teaching practice in the future.
	When a specific outcome (see previous) made teachers state how they would modify the associated teaching practice in the future.
From DC to PD	When teachers reflected on a specific outcome, thus changing a specific aspect of their previous knowledge.
	When teachers reflected on a specific outcome, thus changing a specific aspect of their previous knowledge.
From PD to DC	When a specific aspect of teachers' knowledge helped them in reflecting on/analysing a specific outcome of their teaching practice.
	When a specific aspect of teachers' knowledge helped them in reflecting on/analysing a specific outcome of their teaching practice.

Key

PD = personal domain   *DP = domain of practice*
ED = external domain   *DC = domain of consequence*