

An international study of trainee-trained transitions

Citation for published version (APA):

Gordon, L., Teunissen, P. W., Jindal-Snape, D., Bates, J., Rees, C. E., Westerman, M., Sinha, R., & van Dijk, A. (2020). An international study of trainee-trained transitions: Introducing the transition-to-trained-doctor (T3D) model. *Medical Teacher*, 42(6), 679-688. <https://doi.org/10.1080/0142159X.2020.1733508>

Document status and date:

Published: 02/06/2020

DOI:

[10.1080/0142159X.2020.1733508](https://doi.org/10.1080/0142159X.2020.1733508)

Document Version:

Publisher's PDF, also known as Version of record

Document license:

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An international study of trainee-trained transitions: Introducing the transition-to-trained-doctor (T3D) model

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ABSTRACT

Background: Throughout their careers, doctors and other healthcare professionals experience numerous transitions. When supporting transitions, opportunities for development and learning should be maximized, while stressors having negative impacts on well-being should be minimized. Building on our international data, this study aimed to develop a conceptual model of the trainee-trained transition (i.e. the significant transitions experienced by doctors as they complete postgraduate training moving from trainee/resident status to medical specialist roles).

Methods: Employing Multiple and Multidimensional Transitions (MMT) theory and current conceptualizations of clinical context, this study undertook secondary analysis of 55 interviews with doctors from three countries (Netherlands, Canada and the UK) undergoing trainee-trained transitions.

Results: Through this analysis, the Transition-To-Trained-Doctor (T3D) conceptual model has been developed. This model takes into consideration the multiple contexts and multiple domains in which transitions take place.

Discussion: This model is significant in that it has several uses and is applicable across countries: to remind doctors, managers and medical educators of the complexity of transitions; to frame and facilitate supportive conversations; and as a basis to teach about transitions.

KEYWORDS

Multiple and multi-dimensional transitions (MMT) theory; qualitative analysis; secondary data analysis; trainee-trained transitions; transitions; postgraduate medical education

Introduction

Transitions are a fact of life, and yet transitions experienced by doctors and other healthcare professionals have only recently come under scrutiny. During their careers, doctors experience several periods of significant transitions, including shifting policies, geographies, workplaces, career foci, roles and responsibilities, colleagues and peer groups (Murray et al. 2014; Ali et al. 2016; Walesby et al. 2016; Gordon et al. 2017). 'Transition' is not an alternative word for 'change' but more accurately refers to an ongoing process of psychological, social and educational adaptation over time due to changes in context, interpersonal relationships and identity (Jindal-Snape 2018). Such transitions can be both exciting and worrying at the same time for the same person and require ongoing support (Jindal-Snape 2018).

The focus of this paper is doctors' trainee-trained transitions i.e. the significant transitions experienced by doctors as they finish postgraduate training and move from trainee/resident status to medical specialist roles (Teunissen and Westerman 2011). Previous research confirms that trainee-trained transitions are prolonged developmental processes resulting from an interplay between educational, psychological, social and contextual factors (Westerman et al. 2013; Gordon et al. 2017). Additionally, trainee-trained

Practice points

- Trainee-trained doctor transitions are ongoing processes in which multiple domains and contexts in doctors' lives will be affected.
- The T3D model has been developed to help doctors, managers and medical educators better understand trainee-trained transitions.
- The T3D model can be used as an educational aide to support trainee-trained transitions as it takes into account these multiple domains and contexts.

transitions can negatively impact on doctors' well-being, such as increased risk of burnout, stress, sleep disorders and fatigue (West et al. 2006; Tanaka et al. 2012; Westerman et al. 2013; Saleh et al. 2014). Worldwide, attention to doctors' well-being has intensified, in particular, for its links to sub-standard patient care resulting from mistakes and decreased levels of empathy (British Medical Association 2017; Dewa et al. 2017).

If managed well, transitions can also be a time for deep learning and professional and personal growth (Kilminster

et al. 2011). For doctors, understanding their own trainee-trained transition experiences can help to ensure that they can minimise risk to their well-being, and maximise opportunities for learning and development (Jindal-Snape 2016). For managers and policy-makers, understanding trainee-trained transitions can help improve deliberate mechanisms of support for doctors joining their organisations or moving into new, senior roles (Atherley et al. 2019). Thus, reconceptualising trainee-trained transitions by seeking to maximize opportunities for development, while simultaneously minimizing harmful stresses could ultimately contribute to doctors' enhanced well-being and to improved patient care. This article aims to enhance understanding of trainee-trained transitions by presenting a conceptual model of trainee-trained transitions. Medical education is often criticized for its lack of theory building (Rees and Monrouxe 2010; Brown et al. 2019). This paper addresses that concern by developing a well-researched conceptual model based on a large dataset of the trainee-trained transition. Our model has been developed through secondary analysis of interviews with doctors experiencing trainee-trained transitions from three countries. First, we present the theoretical underpinnings influencing the development of the conceptual model.

Multiple and Multi-dimensional Transitions (MMT) theory

Multiple and Multi-dimensional Transitions (MMT) theory offers the conceptual framing for this secondary analysis (Jindal-Snape 2016, 2018). Traditionally, transitions are conceptualized as having three phases: (1) pre-transition identity; (2) the ritual (a liminal phase where individuals are neither one thing nor another); and then (3) post-transition identity (Beech 2011). This linear approach dominates the health and social care transitions literature (Bridges 2004; Kralik et al. 2006). However, linear thinking fails to acknowledge the complexity of the healthcare workplace and the resulting multiple dimensions of transitions; instead, MMT theory acknowledges that transitions are not linear, finite processes (Jindal-Snape 2016). Drawing on research on international students' experiences, Jindal-Snape (2016) argues that transitions are experienced in multiple contexts depending on the specific situation and the individual (for instance, in the case of international students: a new country; a new educational system; a new study programme; new cultural norms and expectations, etc.). Furthermore, an individual does not remain in one context but will move through multiple contexts, even during the course of a single day (e.g. between home and work).

MMT theory particularly highlights the multiple domains involved in transitions, including: physical; cultural; psychological; and social (Jindal-Snape 2016). For example, some individuals will go through transitions such as moving to a new organisation (affecting their physical domain), and others might have transitions related to relationships with colleagues, patients, and/or family and friends (affecting psychological and social domains). Furthermore, whilst one domain might stay constant, others can be in a state of flux. These multiple domains have complexities attached to each one (Campbell-Clark 2000). It is also important to remember that an individual will have different significant

others in different domains and an individual's transitions can trigger transitions for their significant others and vice-versa (Jindal-Snape et al. 2019). Moreover, a change in one domain will often trigger changes in other domains, e.g. a change in working relationships with colleagues in the social domain may trigger positive and negative changes in the psychological domain (Shane and Heckhausen 2016).

Just as Jindal-Snape (2016) argues that student transitions are not singular but are rather constituted of multiple different transitions, so too are trainee-trained doctor transitions (Gordon et al. 2017). A strength of MMT theory is that it foregrounds the complexity and non-linearity of transition processes. Through articulating this complexity, MMT allows healthcare professionals and those who manage them to develop opportunities to maximize learning while facilitating recognition of potential stressors in multiple domains.

Little transitions research in the healthcare setting has applied MMT theory's conceptualisations of transitions so far (Rees 2017). Indeed, to our knowledge, only one study has used MMT theory to underpin their description of doctors' transitions to senior roles (Gordon et al. 2017). Within this study, it was found that MMT theory helped to explain the longitudinal transition experiences of eighteen doctors (and significant others in their life) as they moved through the trainee-trained doctor transition in the UK (Gordon et al. 2017). For the current paper, MMT theory was recognized as an appropriate theoretical lens as its explanatory power allowed us to focus on the multiple domains that foregrounded the diversity of processes and effects experienced by doctors from three countries who were experiencing trainee-trained doctor transitions.

Additionally, Bates and Ellaway (2016) conceptual thinking around clinical context added a further explanatory lens to our analysis. Bates and Ellaway (2016) articulate a notion of context that can be understood in terms of intersecting and interacting patterns taking into account various aspects of doctors' work, including: patient context (e.g. profiles of the patient population); physical context (e.g. geographical location); practice context (e.g. clinical specialty); educational context (e.g. postgraduate training programmes); institutional context (e.g. organisational culture); and social context (e.g. personal values and beliefs). These two conceptual approaches together enabled our examination of individuals' experiences of trainee-trained doctor transitions in multiple domains while being sensitive to the multiplicities of their workplace contexts.

This study aimed to develop a conceptual model of trainee-trained transitions that was relevant and of use internationally. We asked what aspects of context and domains within trainee-trained doctor transitions are common across the data from three countries (irrespective of national contextual differences), and how do these multiple context/domain aspects interact?

Methods

Research approach

Qualitative secondary analysis allows researchers to return to their research to ask different questions (Irwin 2013). Data from three studies undertaken in three countries were reanalyzed in order to develop the conceptual model.

Bringing together for secondary analysis a larger, international dataset provided opportunities to explore similarities and differences in the trainee-trained transitions in different countries, thus facilitating the development of a model with potentially greater international relevance (Irwin 2013). The sub-sections below entitled 'research settings' and 'data sources' summarize the methods of primary data collection undertaken in each country. We then describe in detail the methods of secondary analysis used in order to develop the conceptual model.

Research settings

In the countries in which the primary research took place (the UK; the Netherlands and Canada) doctors undertake between 2 and 12 years postgraduate medical training depending on the country and their chosen specialty. Following graduation from medical school, in the UK and the Netherlands, doctors typically work as junior doctors for up to 2 years before undertaking specialist training (for example, in surgery, paediatrics, family medicine, etc.). Following training, doctors are registered as medical specialists based on in-training assessments of competence. In Canada, following medical school, doctors enter directly into either family medicine or residency training programs. Following residency training, doctors transition into medical specialist practice based on in-training assessments and national summative exams.

Data sources

The original studies were qualitative in nature, each underpinned by social constructionism and epistemologically grounded in interpretivism. Primary data were collected through a total of 55 semi-structured interviews undertaken as part of three separate projects exploring the trainee-trained transition experiences of doctors from three countries: the UK ($n=21$); the Netherlands ($n=14$); and Canada ($n=20$). Authors LG, MW, and RS undertook these interviews in the UK, the Netherlands and Canada respectively. General participant characteristics are detailed in Table 1. The focus of the interviews in all three primary studies centred on how doctors experienced trainee-trained transitions.

Table 1. Participant characteristics.

Country of origin	Gender	General specialty	Year of data collection
UK ($n=21$)	Female = 11 Male = 10	Surgery = 4 Medicine = 11 Laboratory-based = 1 Family medicine = 4 Anaesthetics = 1	2015 = 21
Netherlands ($n=14$)	Female = 8 Male = 6	Surgery = 7 Medicine = 7	2009 = 14
Canada ($n=20$)	Female = 11 Male = 9	Surgery = 2 Medicine = 11 Laboratory-based = 1 Family medicine = 5 Anaesthetics = 1	2014 = 16 2015 = 4
Total = 55	Total: Female = 30 Male = 25	Total: Surgery = 13 Medicine = 29 Laboratory-based = 2 Family Medicine = 9 Anaesthetics = 2	Total 2009 = 14 2014 = 16 2015 = 25

UK study data collection

In the UK, trainee doctors who were within 6 months of completion of training were invited by email to take part in interviews about their experiences of trainee-trained transitions as part of a wider longitudinal project (Gordon et al. 2017). Twenty-one doctors consented to take part in interviews between June and September 2015. These interviews lasted between 21 and 57 min (average 36 min).

Netherlands study data collection

In the Netherlands, 14 doctors consented to be interviewed (Westerman et al. 2010). The interviews were conducted in Dutch and lasted between 25 and 45 min (average 34 min) and were conducted between January and May 2009. All participants had completed training and commenced their new trained doctor jobs between four and 24 months previously.

Canadian study data collection

In Canada, 20 physicians consented to be interviewed. Participants were between 3 months to 3 years into practice as a trained doctor. Interviews were all conducted in English between January 2014 and January 2015 and lasted between 25 and 80 min (average 51 min).

In all three studies, participants were questioned within the interviews about how they conceptualised their trainee-trained transitions and how their postgraduate training had helped their trainee-trained transition. Furthermore, participants were asked about the socialization process to their new organizations and other aspects of their transitions, for example, their experiences of geographical relocation. All interviews were audio-recorded and transcribed as part of the original projects.

Secondary data analysis

Ethical approval

Ethical approval for secondary analysis of the three datasets was gained from the University of St Andrews, where the first author was based at the time of the analysis. Each country's original dataset had ethical approval, which

included permission to undertake secondary analysis of data collected.

The research team

All three researchers collecting the original datasets were part of the research team for this paper (MW Netherlands; RS Canada; LG UK data). All other authors for this paper (except AVD) were also investigators for the original studies, and thus were actively involved in primary data analysis for the original studies. This involvement of original investigators served to minimise the potential for 'epistemological drift' from the primary dataset due to 'distance' from data collection and primary analysis; a criticism levelled at secondary data analysis (Irwin 2013). Through the presence of the original investigators, the current research team for this paper were able to orientate themselves to the data collection processes and the contexts in which the data were collected (Irwin 2013). The authors are affiliated to universities from all three data holding countries (UK = 2; Netherlands = 3; Canada = 2) and Australia (this researcher was based in the UK at the time of the UK data collection). Three of the team are also working doctors, specialising in internal medicine, nephrology and obstetrics, with expertise in medical education; one of the team has previous clinical experience as a physiotherapist; three of the team are academics with healthcare professions education (HPE) expertise from HPE Centres in the UK, Canada and Australia; one of the team is an academic with educational and life transitions expertise from a UK School of Education; and finally the research assistant in the team is a Masters graduate in health sciences.

The team undertook a fully reflexive approach to data analysis, openly discussing, challenging and negotiating the findings as a team throughout the analytical process, including the writing of this paper (Barry et al. 1999). Several video-conference cross-country team meetings were convened, plus two face-to-face meetings were held between LG, PWT, AVD and MW (with RS in attendance by Skype) at the beginning and end of the initial analysis processes.

Data management

A data sharing agreement was drawn up and signed by all participating institutions. Transcripts from the interviews were anonymised at source prior to sharing with the wider research team via an encrypted secure electronic drive. While interview transcripts were in Dutch and English, three of the research team (AVD, PWT and MW) were fluent in both languages and could therefore provide translation of excerpts of the Dutch data into English for the benefit of the rest of the English-speaking research team. In order to facilitate the organisation and analysis of the dataset, the transcripts were uploaded to Atlas-ti (Version 7.1) software.

Analysis process

Our approach to data analysis was abductive which advocates shifting back and forth between the data and current

theoretical underpinnings to develop new ideas and to check those ideas against the data (Timmermans and Tavory 2012). We first sensitised ourselves to each dataset by reading data excerpts (including those translated by bilingual team members), team-based discussion and the development of a shared understanding of trainee-trained transitions aligned with MMT theory (Jindal-Snape 2016) and our conceptualisations of context (Bates and Ellaway 2016). Through these discussions and engagement with MMT theory, we developed a set of *a priori* themes. While primary data were collected in three different countries, the identified themes were comparable, i.e. the ways in which participants from the UK, Canada or the Netherlands perceived their experiences of trainee-trained transitions were similar despite country context differences (e.g. healthcare systems, training programs, etc.).

These initial themes were then utilised by AVD to undertake an initial coding of four interviews, which were verified by PWT and LG. Using these *a priori* themes to sensitise the analyst to the data, AVD proceeded to undertake extensive, detailed coding of 34 of the interviews (UK = 12; Netherlands = 14; and Canada = 8), from which a more extensive list of themes were developed moving beyond the initial themes. We stopped at 34 transcripts in the initial instance as we considered this initial coding was sufficient in terms of developing the conceptual model; additionally, a diverse range of transcripts (all three countries; and a range of specialties) had been coded (Malterud et al. 2016).

Members of the research team (LG, PWT, AVD, MW and RS) then worked together to discuss, negotiate and develop thematic clusters that considered both the initial *a priori* themes, our theoretical underpinnings and the new themes identified within the data. From these thematic clusters, we developed the first iteration of the Transition-To-Trained Doctor (T3D) conceptual model, which was then checked for authenticity using the remaining nineteen interview transcripts. Finally, the T3D model was shared with all authors of this paper for critical commentary and further in-depth conceptual refinement occurred.

When the research team had agreed the contents of the T3D model, we then worked with a professional artist to develop a visual representation of the model. This was done to create an image that would simplify complex findings for end-users of this research (for example, managers, policy makers and doctors themselves: Featherstone 2014; Metcalfe 2015; Rees 2018). This resulted in the final visual iteration of the model seen in Figure 1.

Results

Within this section, we present the T3D model, alongside excerpts from the dataset reflecting the different aspects of the model.

Summary of the T3D model

Aligned with MMT theory, participants described the trainee-trained transition as a time when changes happened in the four different domains of their work and personal lives (i.e. physical, cultural, psychological, and social: Jindal-Snape 2016). There were various areas in which



Figure 1. T3D model (illustration by Ashling Larkin).

Table 2. Description of contexts.

Context	Description
Workplace	When talking about transitions in relation to workplace context, participants referred to their immediate workplace surroundings; the systems in which their workplaces were situated; and their workplace relationships with colleagues and patients. They were less likely to consider transitions in workplace context in relation to wider organizational, sector and national settings.
Individuals' roles	When referring to the context of individuals' roles, participants spoke about moving to their new work roles and what those new roles brought in terms of: responsibilities; allocated tasks; and their own adaptations to new experiences.
Educational	When talking about their experiences in relation to the educational context, participants discussed their experiences of systems of learning that they were exposed to as trainees.
Individuals' homes	Through discussing trainee-trained transition experiences and aligned with MMT theory's conceptualizations of transitions as multiple and multi-dimensional, participants discussed changes in their home settings, including jobs in new locations or how the new roles affected work-life balance and significant others at home.

participants experienced changes, grouped into four contexts: *workplace*; *role*; *educational*; and *individuals' home contexts*. Table 2 provides a description of each context.

Referring to the visual depiction in Figure 1, the T3D model shows each individual surrounded by an outer circle depicting the four contexts moving around the individual according to their prominence at any given point. Within each context, an inner circle of the four MMT domains also

move around the individual and will interact with each other across contexts. It should be noted that each of the circles are not closed, indicating that transitions are created and experienced in interaction with significant others (e.g. family or colleagues). The data also revealed that the differing contexts interacted with each other, highlighting transitions as both multiple and multi-dimensional. Therefore, the T3D model is designed to depict intentional fluidity

and mobility. Finally, to highlight the conceptual similarity and the individual uniqueness in experiences of doctors internationally, we placed the national context under the characters' feet.

Data examples illustrating the T3D model

Next we present five examples from the dataset which illustrate the T3D model, including demonstrating the inter-connectedness between each context; how each context influences the other; and how the different MMT theory domains (physical, cultural, psychological, and social) depicted within the T3D model interact. Note that we have included further illustrative quotes and how they map onto the T3D model in Table 3. Our first example (from a Canadian participant) reveals how work and home contexts are interacting:

... given the volume of patients... 1200 patients is far too much for me to see and to provide good care for... it's a bit of a struggle in terms of wanting to provide good patient care but also wanting to have a healthy work-life balance and see my children at appropriate times. It's a balance I don't think can be attained right now... In my clinics there's still a significant waitlist and so it's been I guess a bit of an emotional struggle to find that balance cause I know the patients are ultimately suffering at the end of the day... (Canada 9)

This participant talks about how they are trying to manage their work context in a way that minimizes negative impacts on their home context including their children, but also flagging the tensions between home needs and patient needs. The participant brings in their individual role context as they describe their clinic waiting list as an "emotional struggle", against their desire for patients to receive the best possible care. This quote also illustrates how this transition affects them in all four MMT domains as they: struggle emotionally (psychological); look for support from others (social); desire to maintain good patient care (cultural); and maintain a healthy work-life balance (physical & psychological). Noting that all four domains are affected in multiple contexts, the T3D model can help highlight that this participant is finding their trainee-trained transition experiences challenging and may need additional support. Our second example (from the Netherlands) extends this thinking by talking about the impacts of transitions on work and home contexts together:

Well, the first time you are at home in your bed, and you are being called for something urgent, well that is very stressful. You think: "oh god, what if I'm now behind on the facts, and what's happening". You get information of course, but you don't know what you get into when you arrive. So, to forestall that I often sleep in the hospital... to not have the distance being the reason for possibly being too late, even when there are arrangements on living... close to the hospital. But it makes it a lot less stressful and also easier for the people at home, when I am not around. (Netherlands10 [translated])

Both this participant and the previous from example 1 are acutely aware of their new-found responsibilities and their impacts on home, as well as work. These participants' experiences exemplify how psychological, cultural, physical, and social dimensions are often intertwined. In the example quotes above, participants use strong emotional language such as the words "stress" and "struggle" to express the

psychological factors at play, and the physical domains are highlighted through the distance between home and the hospital while on call, meaning that the Dutch participant in example 2 prefers to sleep in hospital to help reduce time to patients' bedsides and to not disturb their family. Finally, the social and cultural domains are affected through their own expectations of their role, as well as how their stress is perceived and experienced by their families.

Typically, across the dataset, participants described seeking support for aspects of the workplace context that were unexpected or they felt underprepared for. Seeking support facilitated participants' learning within the workplace context about systems such as billing and patient management, as indicated in our third example:

... one or two people... volunteered to teach me the ins and outs of billing and giving me some information there and that was helpful... there wasn't just one mentor, but I had a few people that if anything came up, I could ask... I think honestly becoming comfortable with the idea of asking colleagues for assistance without having to worry... if I was unsure about patient management... it was helpful the idea that I was able to say 'you know what, I know I'm supposed to be fully staffed now but it's okay, I'm going to ask this guy'... Becoming comfortable with that, becoming comfortable with the uncertainty around patient management... that one was psychologically harder than I thought it was going to be. (Canada11)

Referring to the T3D model, this third quote (from another Canadian participant) illustrates a triadic interaction between the cultural, social and psychological MMT domains within the workplace context. Indeed, participants described cultures of support within workplaces leading to psychological safety in terms of being able to ask colleagues for help. This participant specifically mentions the psychological impact of asking for help, plus flags that asking for help can be a personal barrier. This also alludes to the educational context that previously and currently surrounded this participant (or lack thereof) and the experience of having to create an educational context for themselves.

Popular amongst interviewees, was the recognition that a new role came alongside new levels of responsibilities as illustrated in our fourth example:

...when you get into trouble [as a trainee] somebody is standing next or behind you that can act immediately. And then, during one of my first consultant shifts I had a delivery which failed to progress, and then you realize that when you let the assistant do the job, you yourself are the end of the line! Normally, when you could not do the job, there was a safety net. But now you are the safety net... You become just that little bit more alert and you have the 'what if it does not work' scenarios in your head. (Netherlands 11 [translated])

In this quote, the Dutch participant uses this example to explore how their role has changed as they realise that they are now 'the end of the line' in terms of patient care. The participant repeatedly talks about no longer having a 'safety net' as they once did as a trainee. In relation to the T3D model, this new individual role context can be seen to affect this participant in the psychological domain, in that they described now being more alert and cognitively engaged. The cultural and social domains are also affected through participants' perceptions that support is no longer available to them (and hence the need to create their own

Table 3. Additional examples of typical data across the three countries.

Quote	T3D contexts affected	T3D domains affected
<p>... when you are finished with your training, you are trained to be a medical specialist. But, the other side of the story, namely the finances and management, which is fifty percent - I think - of your job content, you've never heard of these things ... So, the organization of a hospital and a partnership, how the relationships are, how the finances have been arranged and also with investments, budgets, those are all things that you don't know anything of. (Netherlands 6 [translated])</p>	<p>Educational context has had aspects missing, which affects notions of their individual role.</p>	<p>Cultural and social domains are affected through the requirement to develop new understandings of systems.</p>
<p>I've been going to consultant meetings for the last couple of months ... doing stuff that I've expected to have ongoing involvement with once I actually start my [trained] job. So, I think [that] they included [me] in emails amongst the consultant group shows that I'm part of that group and that I'm involved in decisions and discussions that are taking part. So that's helped and basically show that I will be part of that group and not that I'm working a different role just now and I will become a part of that. (UK 16)</p>	<p>Educational context has allowed the participant to engage in their workplace context and develop understandings of their new individual role.</p>	<p>Situation helped this participant's social domain by making them feel included. Psychological domain is affected positively by helping them prepare for their new role.</p>
<p>I think I have changed my identity of how some people see me. I do think that there are some members of the team that kind of look to me for support and balance and for stability through the many changes that are happening in our clinic and on the ward ... I can see that I have grown in patience more and in empathy as well. I have matured a bit in those two areas I think because working in a system where you realize you can't change everything. You have to choose your focus and choose the things that are important for clinical safety and for clinical improvement. I can see where I have grown in that area in terms of being a bit more astute as a manager in terms of what areas to focus on in our change. (Canada 2)</p>	<p>Individual role has allowed participant to understand their workplace context better, which has led to positive development as a leader.</p>	<p>Participant is affected positively in the psychological domain, as well as in the social domain in the new way that colleagues see them.</p>
<p>... that is a really nice thing that ... the job that I applied for could have been in four different [new sites], and we [the participant and their family] thought carefully ... that is something that I'm glad we're not having to go through ... just being in the same place and having the stability of working at this [site], ongoing is great ... not having to move so you stay within the same community, that makes a big difference to me. (UK 17)</p>	<p>Workplace context has affected their home context positively because they have been able to stay in the same workplace.</p>	<p>Psychological, social and physical domains are affected positively by not having to move.</p>
<p>Very hectic and very busy. For a few months I have travelled back and forward between place and place (1 hour) and that is in itself a big burden. Next to this, you are moving your whole family to another region. So, you are selling and buying [a house] of course, the kids need to go to other schools. So that was very stormy. (Netherlands 7 [translated])</p>	<p>Workplace and home contexts affecting each other due to geographical relocation affecting family.</p>	<p>Negatively affected in both psychological and physical domains.</p>
<p>I think it was easier in practice because I'm more in control of my work time so I can work longer when I'm able to or I can scale back when I want to depending on what my other commitments in my life are ... But that's definitely something that in residency it's full-on residency and there isn't much room for anything else besides work, in my opinion. (Canada 17)</p>	<p>New individual role has allowed this participant to have more control in their home context.</p>	<p>Positively affected in the psychological and social domains.</p>

educational context) and that they should not need to ask for help as trained doctors.

In the our fifth example, a UK participant discusses how, as a trained doctor, they will need to undertake an educator role themselves, as well as the additional role expectation of being responsible for safe patient care (indeed, the participant uses 'safe' three times in this short quote):

You're kind of developing your own style... with you being a trainer in the future, it's to recognize that everyone is different and that you need to make sure your trainees are working safely. And that although your decisions might... be different, as long as they're safe, then that's fine and they're kind of accepting that... your job as a trainer is... it's to get them out at the end of the training as a safe, confident, independent practitioner. (UK1)

This participant discusses their anticipations of interactions between educational programs and safe practices in the clinical workplace. We locate this interview excerpt within the psychological domain, as the participant is anticipating a new role as educator, a role also subject to social and cultural expectations.

Discussion: using the T3D model to support transitions

Our study set out to explore aspects of transitions common across the three countries and what aspects seemed to be situated in specific local contexts. MMT theory sensitised us to examine trainee-trained transition experiences for individuals across multiple domains (Jindal-Snape 2016). Alongside this Bates and Ellaway (2016) articulation of the importance of multiple relevant contexts helped us recognise the multifaceted nature of context. Additionally, combining the three datasets from different countries for this analysis, allowed our research to reach beyond single-country findings, typically seen in previous healthcare education transitions literature (e.g. Westerman et al. 2013; Ali et al. 2016; Gordon et al. 2017). Developing the T3D model meant taking into account dynamic understandings of trainee-trained transitions that cross-cut the three countries and through this support and extend our understandings of transitions as being non-linear, multiple and multi-dimensional, as theorized by Jindal-Snape (2018). Through this, our study responds to recent calls for more complex perspectives on the study of transitions that move beyond a focus on preparedness for practice and instead focus more on the developmental and social aspects of transitions which promote reflection and learning (O'Brien, 2018; Atherley et al. 2019). Although our attention is on a specific transitional period in medical careers, the T3D model adds to the broader conceptual literature and theory building on doctors' transitions.

Bringing together a psychosocial perspective (shaped by MMT theory's domains: Jindal-Snape 2018) and Bates and Ellaway (2016) multiple clinical context perspective, the T3D model brings to light what matters to individual doctors when they experience transitions. Its ability to configure and reconfigure, means that the T3D model emphasizes the uniqueness, fluidity and everchanging nature of transitions and how multiple transitions can influence and impact on each other, as articulated by MMT theory (Jindal-Snape 2016, Jindal-Snape 2018). Using the T3D

model, we were able to see and confirm the interactions between different domains and different contexts (Bates and Ellaway 2016; Jindal-Snape 2018).

To explore the usefulness of the T3D model further, Argyris and Schons' (1974) notion of generative and adaptive learning is relevant. *Adaptive learning* is focused on improvement or development through self-organization of known goals, values and frameworks (Argyris 2008). *Generative learning* represents a questioning approach in order to facilitate exploration beyond functioning rules and norms to generate new ideas and ways of seeing and doing, leading to shifted ways of thinking and perceptions of organisations (Argyris and Schon 1974; Smith 2001; Chiva et al. 2010). We think that the T3D model could act as a facilitator for generative learning from the perspective of doctors, their managers and colleagues, and the organisations in which they are situated. Finally, no particular combination of experiences or contexts appeared to be a dominant force within any one country. Indeed, our study emphasized similarities rather than differences between countries, so we would therefore suggest that the T3D model is not country-specific and that it could therefore be applicable beyond the three countries included in our study (Netherlands, Canada and the UK).

Study strengths and limitations

To our knowledge, this is the first multi-country study that has explored trainee-trained doctor transitions. The diversity of the research team meant that each team member brought something different to the analysis, leading to a more developed and sophisticated understanding of the data from multiple viewpoints (Richardson and St-Pierre 2005). Furthermore, developing a visual representation of the model (see Figure 1), facilitated in-depth discussion around how to convey complex information in pictorial form in order to develop something that has potential utility for doctors, managers and medical educators (Rees 2018). Furthermore, the process of developing this visual further enhanced our analysis of data.

Given our secondary analysis of international data, we believe our study to be strong in terms of its transferability (Irwin 2013). However, we acknowledge that the countries from which the original data came, are 'Westernised,' and as such, the T3D model may be less relevant to healthcare and educational systems not considered 'Western'. Furthermore, with our analysis of 55 interviews, we consider our datasets to have sufficient information power (Malterud et al. 2016). However, most participants interviewed in the original studies were from either medical or surgical specialties (42 of 55 participants). Thus, our analysis and the T3D model may be less relevant to doctors undergoing the trainee-trained transition in specialties outside medicine and surgery (for example, family medicine, anaesthetics or laboratory specialties). Additionally, the T3D model may have less relevance to doctors at different career stages (e.g. post-trained but taking on new leadership responsibilities or making clinical-educational transitions) or to nurses and allied health professionals. Finally, we acknowledge that the primary data sources were collected over a number of years (ranging from 2009 to 2015) and that this may have impacted on our findings as healthcare

and educational systems may have changed over time. However, the comparability of our findings across the different countries and over this variable time-span rather suggests the enduring nature of the issues pertaining to trainee-trained transitions outlined in this paper.

Implications

This study raises several implications for both healthcare education and research. We suggest that the T3D model would be helpful to understand transitions for doctors in different situations at different times. The T3D model could therefore be used as an educational aide to: (a) remind doctors, managers and medical educators of the complexity of transitions; and (b) to frame and facilitate supportive conversations. Additionally, this model may have utility for educational interventions such as workshops, with senior trainees or managers and also serve as guidance for peer support groups, enabling articulation of particular challenges and opportunities.

Furthermore, using the T3D model to explore individuals' experiences helped us identify where all domains were being affected in multiple contexts. This could be helpful in anticipating where stressors may arise for individuals experiencing transitions. Using this model as a frame for discussion between managers and doctors making these transitions could open up opportunities to discuss these stressors, anticipate them and support doctors proactively.

We suggest that the utility of this model needs to be further researched. This is particularly so for its value at other periods of intense career transitions, such as: other medical career transitions (e.g. from medical school to first years of clinical practice); the trainee-trained transition experiences of doctors from specialties other than medicine and surgery; the transition experiences of other healthcare professionals; and the transition experiences of healthcare professionals in systems considered to be 'non-Western'.

Conclusion

This study used secondary interview data from three countries to develop the T3D model of trainee-trained doctor transitions. This model reflects the complexity of how doctors experience trainee-trained transitions and takes into account various personal and professional domains and contexts. The T3D model has relevance and utility across the three countries included in this study (the Netherlands, Canada and the UK) and provides a basis for supportive conversations about doctors' trainee-trained transitions. Further research is now needed to explore the relevance of the T3D model for other countries, other medical transition phases and other healthcare professional groups.

Acknowledgements

The authors thank the Association for Medical Education in Europe (AMEE) who funded this secondary analysis. We wish to acknowledge Ashling Larkin for her work designing and developing the visual of the T3D model for this paper. We also wish to acknowledge the contribution of Professor Sabina Siebert from the Adam Smith Business School at the University of Glasgow, to the current project design; the project teams involved in the original studies from which the data

were obtained; and finally the participants who took part in the original studies.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the context and writing of this article.

Glossary

Multiple and Multidimensional Transitions Theory (MMT): Acknowledges that transitions are not linear, finite processes, transitions are experienced in multiple contexts depending on the specific situation and the individual and a change in one domain will often trigger changes in another.

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