Transitions to and within residency training

Unraveling the importance of social interactions and networks

Gerbrich Galema

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Chapter 1

General introduction

This scenario opens with Jonathan, a medical resident embarking on his first day in the anesthesiology department. This morning, he feels quite nervous, though he is also eager to embrace the challenges that lie ahead. From locating the coffee machine to navigating the electronic medical records system, and from delivering patient care to understanding his colleagues and integrating into the healthcare team – a multitude of tasks demand his attention. Fortunately, Jonathan is not left to maneuver his first day on his own. Paula, a peer resident; Maaike, his program director and today his supervisor; and Jason, the anesthetic nurse, stand ready to assist him on this exciting day.

1.1 Transitions in medical education

Transitions are an integral part of medical education, spanning various stages from medical school to residency and beyond (1). These transitions involve shifts in roles, settings, and responsibilities, creating a continuum often referred to as 'the medical continuum' (2). Rather than fixed moments in time, transitions are dynamic processes, involving the movement of individuals from one set of circumstances to another (1,3). Consequently, they represent critically intense periods of learning in which residents engage with the specificities of their new environments and build working relationships with other healthcare professionals (3). Therefore, transitions are often perceived as challenging, even though they also present valuable opportunities for personal growth and professional development (4).

The transition from student to resident is often described as demanding, exhausting, and challenging (5–8). Residents commonly express concerns about the need to acquire extensive knowledge, as well as the pressures of meeting responsibilities, managing uncertainty, and handling suffering from patients, while also coping with high workloads and long working hours (5,7,8). Compounding these challenges, residents frequently rotate among departments during their curriculum, which necessitates adapting to new settings, roles, patients, and teams with each rotation (6,9,10). In each new setting, residents must navigate the 'hidden rules', such as the norms, customs, roles, responsibilities, and rules of interaction (6,11). What makes these transitions even more demanding is that residents often receive insufficient guidance, marked by low team support, inadequate orientations, and limited learning opportunities (6). Consequently, these transition periods can lead to stress, exhaustion, or, even worse, the onset of symptoms of depression (6–8,12).

Transitions also constitute intense learning periods with critical opportunities for growth and development (3,4,13). In each transition, residents can increase the breadth of their

knowledge and skills by participating in clinical work (14,15). Even more important, residents can learn how to adapt to new contexts (9,16,17). When residents change their work context because of rotations, they are forced to cope with multiple practice styles, which can increase their flexibility, efficiency, and ability to work more independently (9,16). To ensure that residents provide safe care in transitions, it is crucial that they are able to adapt to contextual changes and that they develop the necessary knowledge and skills in each new context (17).

1.2 Conceptual perspectives on transitions

In this thesis, we distinguish three conceptual perspectives to interpret how transitions can be understood: the educational perspective focuses on educational innovations to ease the transition, the developmental perspective emphasizes residents' transformation in personal and professional development during the transition, and the social perspective focuses on the cultivation of social relationships in a supportive learning environment to ease their transition (13,18). The following subsections describe each perspective in detail. Note that because current research lacks sufficient information about the social perspective, we compare and contrast this perspective with educational and developmental perspectives.

1.2.1 Educational perspective

The educational perspective focuses on narrowing the gap between student and resident, through courses and curriculum innovations to facilitate learning knowledge and skills (13). Studies from the educational perspective explore and assess how well medical schools prepare residents for practice; the findings show that residents often feel unprepared for practice (19–23). As a consequence, they perceive the transition as stressful, which affects their well-being (6,21). In response to reported feelings of unpreparedness and stress, undergraduate and postgraduate medical education programs have developed courses and curriculum innovations to facilitate residents' learning of knowledge and skill development (24–30). For example, in the Netherlands, students can participate in an Acute Care Transitional Year aimed at increasing students' acute care knowledge, clinical reasoning, skills, and performance in simulations (30). The United Kingdom has a similar program in which medical students can participate in assistantships, acting as assistants to junior doctors. Students who have aligned assistantship placements with their future resident team report feeling better prepared compared with those with unaligned assistantships (25). Other studies report success with postgraduate medical education boot camps or simulation sessions to enhance residents' clinical skills, knowledge, and confidence (26–28). In summary, the educational perspective focuses on increasing

residents' preparedness and decreasing their perceived stress. Programs implementing this perspective tend to prepare residents by training them in clinical skills and knowledge.

1.2.2 Developmental perspective

The developmental perspective focuses on empowering residents' personal and professional development through learning from transformative experiences, by using reflective practices and adopting transferable learning strategies (13). During transition periods, residents face numerous transformative experiences that significantly shape them (31). These transformative experiences often occur in situations in which residents must handle uncertainty and responsibility, which may trigger stress (11,31). Research in this area has focused on activities that can enhance residents' reflection and self-directed learning strategies, such as goal-setting by using portfolios (32–34), so they can handle the stress of these transformative experiences. In summary, the developmental perspective of the transition period centers on enhancing residents' reflection and transferable learning strategies by capitalizing on transformative experiences.

1.2.3 Social perspective

The social perspective contrasts with the educational and developmental perspective in its emphasis on the cultivation of social relationships and the creation of a supportive learning environment in which residents can effectively learn from one other, faculty members, and other healthcare professionals (13). Various social factors contribute to residents' transitions, including the importance of receiving appropriate support, establishing social relationships to facilitate feedback exchange, and defining their own professional identity in the context of other healthcare workers' professional roles and identities (5,10,31,35,36). Notably, support from colleagues and supervisors positively influences residents' well-being, whereas the absence thereof can have detrimental effects (6). This support can manifest in various ways, such as orientation processes, the availability of supervisors, feedback mechanisms, established expectations, personal interest in the resident, the organization of social activities, and the provision of learning opportunities (6).

Although this body of research (5,6,10,31,35,36) highlights the importance of social factors in the transition from student to resident, it does not fully elucidate the processes through which residents acquire their social roles, effectively integrate into healthcare teams, and adapt to existing norms and customs. This process of adapting to the norms and values of a new group is recognized as socialization (37), and it is vital for residents, who must become integral members of healthcare teams to provide complex patient care (38–40). Nevertheless, the specific strategies residents employ for adapting to the established norms and customs of the healthcare team, how they experience barriers in their integration process, and how they deal with these barriers all remain unexplored.

In addition, little research addresses strategies other healthcare professionals or organizations use to help residents adapt to their new role.

In summary, both literature and practice have given explicit attention to educational and developmental perspectives, which involve preparation for medical resident roles through a focus on learning clinical skills and knowledge (24–30), and to reflection and discussion, facilitated through tools such as portfolios (32–34). In contrast, a notable knowledge gap exists in understanding the social perspective and its practical implications. This thesis contributes to extant literature by shedding light on how residents adapt to their new healthcare teams by learning the norms and customs, how they experience barriers in social integration, how they cope with these barriers, and what other healthcare professionals and organizations can do to facilitate their socialization process.

1.3 Theories

To explore the social perspective knowledge gap, we use the theories of organizational socialization (OS), social capital (SC), and social networks (SN). This thesis works from a constructivist paradigm, in which reality is subjective and context-specific, such that no ultimate truth exists (41). In a constructivist paradigm, theories are often used to gain a deeper understanding of the phenomenon studied (42). These theories act as 'lenses' for examining complex problems and social issues (43). Each theory emphasizes specific aspects of the data, equipping the researcher with tools for analysis (43). For example, OS theory distinguishes individual and organizational strategies, which helps shed light on strategies residents use in their transition and strategies other healthcare professionals use to help residents adapt (44,45). The SC and SN theories enable identification of people in residents' social networks who help them adapt and the nature of the support these people provide (46–48). The following subsections describe each theory and justify their use herein.

1.3.1 Organizational socialization strategies

1.3.1.1 Individual strategies

Organizational socialization theory describes individual tactics or strategies to adapt to a new role (45). Among the various taxonomies used in other studies, this thesis draws on the five general tactics described by Chao: monitoring, inquiry, job changes, establishing social relations, and information seeking (45). Previous research studying business graduates transitioning into their first job and preclinical medical students transitioning into clinics shows that individual strategies such as information and feedback seeking, relationship building, job-change negotiating, and positive framing contribute to clarifying the newcomers' role in acculturating and socially integrating (49–52). Business

graduates and medical students often perceive uncertainty when they enter their new role, and using these individual strategies can help them reduce uncertainty (49–52). Although medical residents also perceive uncertainty when they enter their new role and must learn how to socially integrate into their new healthcare team (11), whether they use similar strategies remains unclear. That said, due to the similarities in the context, we assume that individual tactics from OS constitute a promising lens to better understand residents' strategies to adapt to their new role (44).

1.3.1.2 Organizational strategies

This theory also describes organizational tactics, which refer to organizations' efforts to facilitate the transition process of individuals (44). In the medical resident setting, these strategies can be the interaction between residents and other healthcare professionals or the impact of policy at department and hospital level on residents' transition. OS theory suggests six organizational tactics, framed as dichotomies: collective–individual, formal–informal, sequential–random, fixed–variable, serial–disjunctive, and investiture–divestiture (44). Table 1 presents summaries of each tactic.

Table 1. Description of Organizational Socialization Tactics(44)

Socialization Tactic Dichotomy	Description
Collective–individual	The degree to which newcomers are socialized in a group with common experiences or separated from other newcomers, such that they have 'a more or less unique set of experiences' (44)
Formal–informal	Whether newcomers participate in a structured program tailored to their role of newcomer, separated from regular employees, or in a program that does not distinguish the newcomers' role from other roles, so they learn their new role through trial and error
Sequential–random	The degree to which the organization plans the socialization as a gradual process or a more random one, in which the sequence of steps is unknown or ambiguous
Fixed–variable	The degree to which the organization expects that socialization occurs within a fixed time frame or a more variable one, giving newcomers few cues as to when to expect a given boundary passage
Serial–disjunctive	The degree to which newcomers are socialized with the help of role models, or not
Investiture–divestiture	The degree to which organizations build on the capabilities and values newcomers acquired previously and affirm their gained self-image, or deny and strips away certain newcomer characteristics and rebuild newcomers' self-image

Note: This table is summarized from Van Maanen and Schein (44).

Previous studies on business graduates making the transition into their first job have demonstrated that organizational tactics significantly influence their adaptation (53,54). Similarly, research on student nurses transitioning into their first job as graduated nurses has highlighted the importance of organizational tactics (e.g., quality of orientation programs, supportiveness of senior staff, safety of the work environment) in predicting a successful transition (55). To our knowledge, no research has identified the six organizational tactics with medical residents. To optimize residents' transition, program directors (PDs) use various organizational approaches, including formal and informal socialization strategies (56), but residents often experience these strategies as inadequate or absent for various reasons, including high resident-to-supervisor ratios, scheduling challenges, shift work, or service-related work pressure (56). Moreover, scholars have used the newcomer perspective often in researching transitions (51–53,57), but research from the PD perspective is scarcer (58). Perspectives on the different organizational tactics in a medical resident setting (according to both residents and PDs), and whether residents differ in their preferences for certain tactics remains uncertain though, creating a notable gap in current research.

1.3.2 Social capital and social networks theories

To provide comprehensive insight into how residents navigate their transition by leveraging social dynamics within the healthcare team, this thesis builds on SN and SC theories. To date, these theories have not been applied to the transition from medical student to resident. Residents face many barriers in becoming integral members of the healthcare team, especially when they seek clinical support (38,59,60). These barriers include hierarchical structures, the dual roles of supervisors (balancing guidance in patient care with resident supervision and assessment) (38,59), a lack of familiarity among team members (9,10,61), instances of pushback, and feelings of uncertainty (62). Understanding how residents use their social networks and related support to address these barriers is not possible without understanding the composition of residents' social networks. In turn, SN theory is instrumental in exploring the relationships residents form and understanding the dynamics within their network, elucidating how individuals are connected and form a social network (47,63). To unravel how residents employ their social networks to overcome barriers, we turn to SC theory, which posits that people cultivate relationships with actors in their network for resources such as information, expertise, and support (48). These resources contribute to the achievement of goals that could not have been achieved otherwise (64). Coleman's theory is particularly pertinent here; it predicts that people act to optimize specific outcomes and invest in their relationships with others according to whether they believe they will benefit from such investments (65). Although studies have acknowledged the interconnectedness of SN and SC theories (66), the specific ways in which residents leverage their social capital to navigate barriers remains unexplored.

1.4 Research questions and outline of the dissertation

Transitions present various challenges and opportunities for junior doctors (1,3,4,6). These challenges primarily revolve around the complexities of patient care delivery and the integration into healthcare teams as accepted members (1,6,11). To gain acceptance within healthcare teams, residents must learn the team's norms and values, a process recognized as socialization (37–40). Although researchers have explored educational and developmental perspectives in relation to residents' transitions, the social perspective, encompassing the cultivation of social relationships and the creation of a supportive learning environment in which residents can effectively learn from others, remains less understood. In particular, little research addresses which strategies residents themselves use to integrate within their new healthcare team, how they use their social capital and social networks to deal with barriers in integrating within this team, various organizational strategies, and whether residents differ in their preferences for organizational strategies.

Therefore, this thesis seeks to bridge research gaps by addressing the following questions:

1. How do residents navigate the social challenges and opportunities of the transition from student to resident?
2. How do interpersonal and organizational factors affect residents' transition?

To address these questions, we have structured this thesis in several chapters. Chapter 2 is centered on the following research questions: (1) What kind of individual OS strategies do residents use in their transition? (2) What are residents' experiences with OS strategies other healthcare professionals use to facilitate their transition? (3) How do residents perceive the impact of OS strategies of other healthcare professionals on their own adaptation efforts? To answer these research questions, Chapter 2 describes an interview study with residents.

Chapter 3 addresses the following research questions: (1) How do residents establish and mobilize (make use of) their social capital? (2) In challenging situations, what barriers do residents experience and why, with regard to mobilizing social capital? (3) In challenging situations, how do residents use their social network to deal with barriers? The research design is an interview study with residents.

Chapter 4 describes the strategies that PDs use to facilitate organizational socialization of newcomer residents using an interview study with program directors.

Chapter 5 reports the results of a Q-Methodology study that investigates patterns in residents' preferences for onboarding strategies in their new work environment.

The knowledge presented herein contributes to improving transitions on multiple levels, providing recommendations for individual residents to optimize their transitions, as well as guidance for healthcare team members (supervisors, nurses, fellow residents), departments and hospitals to enhance residents' transitions.

1.5 Overview of the studies

This thesis presents four empirical studies to answer the central research question, followed by a general discussion. Table 2 provides an overview of the presented empirical studies. Chapter 6 provides a discussion of the theoretical implications of the findings presented herein, describes the practical implications of this thesis, and suggests avenues for further research.

Box 1. Context of the research conducted in this thesis

In contrast with several other countries, the Netherlands offers a distinctive transition path from student to resident. The majority of doctors do not immediately embark on specialty training after graduation from medical training; instead, they commence their careers as residents not in training. Although this period is not mandated, currently residents gain approximately 3.5 years of work experience as residents not in training on average before starting with specialty training (67). The residents not in training period differs from the specialty training period, in that it lacks any curriculum with formal learning goals or Entrustable Professional Activities (EPAs), nor is there any an official PD (68,69). This trajectory contrasts with specialty training, in which residents benefit from a formal curriculum, individualized training plan, regular feedback, and (programmatic) assessment through EPAs (69,70). However, in both tracks, the focus is not explicitly on how to integrate and function well into a healthcare team. Therefore, a better (scientific) foundation is needed on how to improve the social aspects of residents' transitions and how faculty, departments, and hospitals can offer guidance in the transitions.

Table 2. Overview of the empirical chapters

Chapter	2: Transitioning to residency: A qualitative study exploring medical residents' perspectives on strategies for adapting to residency	3: Exploring medical residents' uses of social capital: A qualitative ego-social network study	4: Learning the ropes: Strategies program directors use to facilitate organizational socialization of newcomer residents—A qualitative study	5: Patterns of medical residents' preferences for organizational socialization strategies to facilitate their transitions: A Q-study
Theoretical lens	Organizational socialization	SC and SN theories	Organizational socialization	Organizational socialization
Research questions	1. What kind of individual OS strategies do residents use in their transition? 2. What are residents' experiences with OS strategies other healthcare professionals use to facilitate their transition? 3. How do residents perceive the impact of OS strategies of other healthcare professionals on their own adaptation efforts?	1. How do residents establish and mobilize (make use of) their social capital? 2. In challenging situations, what barriers do residents experience with regard to mobilizing social capital, and why? 3. In challenging situations, how do residents use their social network to deal with barriers?	What strategies do program directors use to facilitate organizational socialization of newcomer residents?	Which patterns can be identified in residents' preferences for onboarding strategies in their new work environment?
Design	Theory informing study design	Sequential two-phase design	Theory informing study design	Mixed-methods design
Context and participants	16 second year specialty training residents of several hospital-based specialties and two hospitals	29 participants, of whom 16 were second-year specialty training residents and 13 were residents not in training of several hospital-based specialties and hospitals	17 program directors of several hospital-based specialties and eight hospitals (one academic and seven teaching hospitals) in the Netherlands	51 junior residents (residents not in training or first-or second-year specialty training residents) at several hospital-based specialties, at several hospitals
Data sources	Exploratory interviews	Exploratory and semi-structured interviews supplemented with egocentric network analysis	Semi-structured interviews	Sorted q-sorts, demographic questionnaire, and explanation of the sorted q-sorts.

Notes: This dissertation is based on journal articles, so some repetition of information across chapters was unavoidable.

Chapter 2

Transitioning to residency: a qualitative study exploring residents' perspectives on strategies for adapting to residency

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Background

Despite the widespread use of preparation courses, residents still experience the transition from student to resident as problematic and stressful. Although this transition highly depends on the organization residents work for, only a few studies address individual and organizational strategies that help them adapt. We need this information to optimize transitions and improve onboarding programs and faculty development initiatives. This study explores residents' experiences with their own and other health care professionals' strategies to help them adapt to residency, and residents' perceptions of the impact of other health care professionals' strategies on their own adaptation efforts.

Methods

We conducted a qualitative interview study with 16 residents from different hospital-based specialties in the Netherlands. To identify residents' perceptions of their own and other healthcare professionals' strategies, we used a template analysis based on the individual and organizational tactics originating from the theory of Organizational Socialization. In this study, we defined other healthcare professionals as residents, supervisors, nurses and advanced practice providers.

Results

Residents experienced five individual and six organizational strategies. When engaging in social interaction with other healthcare professionals, residents used individual strategies such as asking questions and establishing social relationships to learn how to behave in their roles as doctors and members of the healthcare team. They experienced different strategies from other healthcare professionals, which we clustered into interactional (between healthcare professionals and residents) and systemic strategies (functioning of the system around residents' training program). These strategies facilitated or hindered residents' own adaptation efforts. We found differences in perceptions of whether a specific strategy was facilitating or hindering. Some residents, for example, perceived the lack of a role model as facilitating, while others perceived it as hindering.

Conclusion

Residents felt that smooth transitions require strategic approaches from both residents and other healthcare professionals. They used individual strategies to learn how to perform new tasks, behave appropriately and understand their roles in relation to those of other healthcare professionals. We distinguished interactive and systemic organizational strategies. Organizational strategies positively or negatively affected residents' own adaptation efforts. We found differences in perceptions of whether specific organizational strategies worked, depending on residents' individual needs.

Introduction

The transition from medical student to resident can be a difficult and stressful process for residents, since they have to adapt to a new context, role and tasks, and in the meantime become a member of the healthcare team(1,6,11). In response, several undergraduate and graduate medical education programs (UME and GME, respectively) have tried to optimize the transition process, mainly focusing on educational aspects such as courses and curriculum innovations(26,28,32,33). However, social aspects of transitions (i.e. the role of relationships within residents' learning environment), have not received much attention yet (13). This is problematic because transitions involve a dynamic social interplay between residents (their experiences, perspectives, and capabilities) and the organizational context (e.g., interaction with other healthcare professionals)(4,71). In this study, we use Organizational Socialization theory (OS) as a lens to explore this transition (44,45), because OS distinguishes "individual tactics", which refer to individual strategies to adapt to a new role (45) and "organizational tactics", which refer to organizational strategies to help residents adapt (44). More specifically, we aim to identify OS strategies residents use in interaction with other healthcare professionals and OS strategies other healthcare professionals use to help residents adapt. These insights can make an important contribution to improving or developing intervention programs to facilitate the transition from medical education to residency.

Residents often work in different teams and contexts, requiring them to develop strategies to adapt to their new role, responsibilities, and rules of interaction (6,11,17,31). From transition literature, we already know that undergraduate medical students transitioning into new clerkships and nurses transitioning into their first jobs use different individual strategies to adapt to their new roles, which are referred to as 'proactive behaviors' (52,55,57,72,73). Medical students show proactive behaviors such as seeking role clarification, seeking feedback and building relationships, which in turn contribute to social integration (52,72). Although a supportive environment might foster their proactivity, they still find it difficult to be proactive (52,72). Studies among nursing graduates show that organizational factors, such as the quality of the orientation program, supportiveness of senior staff and safety of the environment, are predictors of a successful transition (55,57,73). From these studies we already know that newcomers show different adaptation behaviors and that organizational factors may or may not be supportive in transitions (52,55,57,72,73). However, in the residency setting it has not yet been explored what strategies residents use in interaction with other healthcare professionals to optimize their transition.

UME and GME programs use educational strategies to facilitate transitions, such as preparing residents for clinical aspects of their new role (26,28) or exploring reflective

practices of new residents in transition through coaching or visual arts-based activities (32,33). However, the workplace can still be difficult to understand for residents due to informal, unmentioned and hidden social forces (74–76). Program directors, supervisors and nurses play a critical role in navigating residents through their socialization process by employing different strategies (40,56,77). These strategies range from introducing residents to the departments' processes (nurses) (40) and organizing formal and informal orientation programs (supervisors) (56) to paying attention to the socialization processes and expectations which, in turn, ranges from tailoring approaches to address individual residents needs to expecting residents to adapt to the implicit norms of the workplace (77). To our knowledge, research has not yet explored residents' perspectives on how social interactions with other healthcare professionals can help them adapt to residency.

To address this gap and gather rich and meaningful information on residents' transition processes, we formulated three research questions: 1. What kind of individual OS strategies do residents use in their transition? 2. What are residents' experiences with OS strategies other healthcare professionals use to facilitate their transition? 3. How do residents perceive the impact of OS strategies of other healthcare professionals on their own adaptation efforts? The findings of this study can contribute to the development and implementation of onboarding programs for residents and faculty development initiatives. Furthermore, our findings will advance the literature on resident transitions and OS theory.

Methods

Theoretical framework

Organizational Socialization (OS) theory represents a valuable perspective to explore how residents adapt to their new roles and their perceptions of strategies of other healthcare professionals use to help them adapt. According to Chao (45), OS is defined as "a learning and adjustment process that enables an individual to assume an organizational role that fits both organizational and individual needs". OS literature distinguishes individual and organizational tactics to facilitate the transition process of individuals. Our data analysis is informed by the work of authors who addressed these individual and organizational tactics. Individual tactics refer to strategies individuals use to adapt to their new roles, while organizational tactics are strategies organizations use to facilitate the process of newcomers' transition (44,45).

If we put research on OS in chronological order, first organizational tactics and then individual tactics were investigated. Van Maanen and Schein (44) identified six different "organizational tactics" which they framed in dichotomies: collective-individual, formal-

informal, sequential-random, fixed-variable, serial-disjunctive, and investiture-divestiture (Table 2). Jones (78) quantified these tactics and since then much empirical (quantitative) research has been conducted on the relation between socialization tactics, adaptation, and outcomes (54).

In addition to organizational tactics, Chao (45) summarized five "individual tactics" which individuals use to adapt to a new role: monitoring or observing, inquiring, changing jobs, social influencing and using written and electronic sources. Extensive quantitative empirical research has been conducted in this area, recognizing that newcomers are active participants in the socialization process (49,50,79).

The theoretical lens of OS was recently used in Health Professions Education literature to study transitions. Studies ranged from undergraduate medical students transitioning to a new clinical clerkship and nurses transitioning to their first jobs to program directors' perspectives on the transition from student to resident (52,55,57,72,73,77). Although these studies have used qualitative, quantitative and mixed methods to investigate both individual and organizational perspectives (52,55,57,72,73,77), only one study identified individual tactics in undergraduate medical students (52) and one study explicitly identified the six OS tactics described by van Maanen & Schein from the perspective of residency program directors (77). This study will add to the theory of OS by filling the gap and exploring the individual and organizational strategies from the perspective of residents.

Approach

To adhere to the quality standards of qualitative research, we reported this study in line with the Consolidated Criteria for Reporting Qualitative Health Research (COREQ), a 32-item checklist for interviews (80). We positioned ourselves in a constructivist paradigm, as we believed that knowledge is co-constructed between participants and researchers, and that multiple realities occur in social processes (81,82).

Setting and sample

This study was conducted in a Graduate Medical Education (GME) setting of specialties in an academic and a larger teaching hospital in the Netherlands. Important characteristics of GME are: (a) enrollment occurs throughout the year and usually involves a small number of residents, so peer-to-peer interactions between new and experienced residents affect the transition (83); (b) undergraduate medical training comprises a three-year bachelor's and a mandatory subsequent three-year master's degree program consisting of a series of clinical rotations and a research project (84); (c) after these six years of training, most graduates work a few years to gain exposure to their preferred specialty or broaden their skills in adjacent specialties (67); (d) graduate training programs last 3-6 years and

include 3-12 month rotations in two or three different hospitals, both academic and non-academic (70).

Via email, we invited all second-year residents from two hospitals (n=94) to participate in an exploratory, in-depth interview. To be able to identify a broad range of onboarding activities, we included a convenience sample of 16 residents from 12 different departments of two hospitals (Table 1, Participant Characteristics). We considered this sample size appropriate for an exploratory study, as it provided sufficient information power to capture residents' experiences. This is in line with suggestions for sampling in qualitative research.(85)

Table 1. Participant characteristics

Attribute	Number of participants
Gender, n	
Female	11
Male	5
Hospital, n	
Academic hospital	10
Nonacademic teaching hospital	6
Specialty: surgical, n	4
Orthopedic surgery	2
Obstetrics and gynecology	1
Ophthalmology	1
Specialty, non-surgical, n	12
Internal medicine	2
Pediatrics	2
Rehabilitation medicine	2
Cardiology	1
Rheumatology	1
Anesthesiology	1
Pathology	1
Psychiatry	1
Dermatology	1

Research team and reflexivity

Working as a dyad, two students (ES, EW) conducted the interviews as part of their graduation project in their Master's program in educational sciences (ES) and organizational sciences (EW). They were trained in interviewing techniques by their supervisor, a senior qualitative researcher who had a clinical background as a medical doctor and worked

in non-clinical roles for the past 30 years (JP). The students and the senior researcher had no previous relationships with the participants. The students reflected with their supervisor on how their background, assumptions, positioning, and behaviors might have influenced the research process (86,87). The students were unfamiliar with the researched context, which might have encouraged them to take on an open and curious stance in understanding the setting in which the residents worked.

The researchers who analyzed the interview data had various experiences in the residency setting, as both clinicians and researchers. GG is a resident in anesthesiology and a PhD student in medical education with previous experience in qualitative research. RD is a psychiatrist and a senior researcher with extensive experience in qualitative research. JB is a (former) nurse and an assistant professor in educational sciences. GW is an anesthesiologist with experience as a residency program director in a large academic hospital and a professor in innovation in postgraduate training with experience in qualitative research. To add analytical depth and uncover aspects of the data the researchers with clinical experience might take for granted, our team was complemented with a qualitative researcher and professor in (veterinary) medical education (DJ), a preclinical medical student (AN) and an information specialist with experience in health professions education research (TB). The diverse backgrounds of the team members allowed us to make the different assumptions and preconceptions explicit and helped ensure that our interpretations were grounded in the data (87).

Data collection

In the Spring of 2017, the two students (ES and EW) conducted exploratory, in-depth interviews. They developed an initial interview guide based on the literature on informal learning, formal and hidden curriculum, expected and unexpected duties, social support and experienced stress in residents (88–94). The interviews were used to explore the broad, central questions: 'how did you experience your first year as resident'? The final guide (Appendix 1, Interview guide) was developed in consultation with their supervisor (JP), and pilot tested with one resident. The interviews were conducted at a time and place convenient to the participants. During the interviews, only the participant and the two interviewers were present. All interviews were audiotaped, pseudonymized and transcribed verbatim for analysis.

Data analysis

In the period 2020–2022, three researchers (GG, JB, AN) used a template analysis approach to code and analyze the data in a structured manner, following the steps proposed by Brooks et al (95).

Three authors (GG, JB and RD) independently familiarized themselves with the data of three interviews through reading, rereading and highlighting interesting aspects. Discussing the initial findings, we noted that the residents reflected on their transition, how they coped with their transition and how others did or did not contribute to their transition. We realized that these interesting aspects could be elucidated by using individual and organizational tactics described in OS theory (44,45) as an interpretative tool to inform our initial template (43).

The initial template was based on a priori themes and codes. The a priori themes were derived from Chao's individual tactics, defined as 'individual attempts to adapt to a new role'(45) and Van Maanen and Schein's organizational tactics, defined as 'strategies of the organization to help newcomers adapt' (44). Within these a priori themes, we identified a priori codes covering the theoretical descriptions of the individual and organizational tactics (Table 2) (44,45). Two researchers (GG and AN) independently coded eight transcripts line-by-line. After coding every second transcript, GG, AN and JB met to compare and discuss the data analysis process and reach consensus. Based on the first round of coding, we modified the initial template, because the context in which the residents worked differed from the context in which the individual and organizational tactics have their roots (i.e., the context in which business graduates worked) (50,53). We slightly changed the descriptions of the themes by replacing 'tactics' with 'strategies' to stay very close to the wording of the interviewees. The final themes comprised residents' perceptions of individual tactics they used and their experiences with organizational tactics to help them adapt to residency. During the data analysis process, the entire team held regular meetings to discuss the data analysis process and refine the themes and codes.

Based on the final template, GG and AN coded the full data set. Thereafter, we mapped and discussed connections/patterns between and within the themes (87). In this part of the data analysis process, we discovered different levels of organizational strategies and how organizational strategies could impact residents' own adaptation efforts.

The coding process was supported by Atlas.ti 8 (96). To ensure credibility and trustworthiness, the first author kept an audit trail of the decisions made throughout the design, data collection, and analysis phases (97–99).

Table 2. A priori codes based on (theoretical) descriptions of the individual and organizational tactics (44,45)

Tactic	Description
Individual tactic	
Observing	Individuals observe others to obtain information on normative standards. Discrete observations minimize social costs for this information-seeking tactic. Self-monitoring or observations of how people react to the newcomer can also aid adjustment.
Asking questions	Asking questions ranges from direct questions for information or feedback to more indirect, covert questions that invite elaboration such as hinting or questions covered in a general conversation. Covert inquiries are more likely when the newcomer is uncomfortable asking direct questions or unsure what questions to ask.
Experimenting	Individuals use active experimentation and/or negotiation to learn more about different tasks, responsibilities, and/or performance expectations. Experimentation can include trial-and-error behavior and testing the limits of current rules to learn more about the organization's values and tolerance.
Establishing social relationships	Individuals establish new relationships with others, which includes networking as well as using impression management tactics such as ingratiation, and the exchange of benefits.
Seeking information	Individuals use written (e.g., manuals, handbooks, and annual reports) and electronic sources (e.g., websites, apps, e-mails, and digital interactions with other organizational members) to collect information.
Organizational tactic	
Collective – individual	This tactic refers to the degree to which newcomers are treated as a group as a whole, by putting them through a common set of experiences *(collective)*, or separately and in isolation from each other, by putting them through a more or less unique set of experiences *(individual)*.
Formal – informal	This tactic refers to the degree to which the socialization process is formal or informal. In a formal socialization process, such as a formal trial period or orientation training, the setting is segregated from the ongoing work context, and the newcomers' role is emphasized and made explicit *(formal)*. In an informal socialization process, newcomers learns in an informal atmosphere, without a sharp differentiation between regular staff and newcomers. Here, much of the learning takes place within the social and task-related networks that surround the newcomers' position *(informal)*.
Sequential – random	This tactic refers to the degree to which the organization or occupation specifies a given sequence of discrete and identifiable steps leading to the target role *(sequential)*, or the sequence of steps leading to the target role is unknown, ambiguous, or continually changing *(random)*.
Fixed – variable	This tactic refers to the degree of information and certainty newcomers receive about the duration of their transition period, whether they exactly know how much time it will take to complete a particular step *(fixed)*, or have no idea about the timeframe *(variable)*.
Serial – disjunctive	This tactic refers to the degree to which newcomers are socialized with the help of role models or insiders *(serial),* or not *(disjunctive)*.
Investiture – divestiture	This tactic refers to the degree to which (certain) newcomers' characteristics (such as knowledge, skill, and abilities) are embraced *(investiture),* or denied and stripped away *(divestiture)*.

Results

Although the participants had previously navigated transitions in undergraduate medical education, they had to adapt to their new role and responsibilities as residents (e.g., increasing patient-related responsibilities, guiding interns, and taking on another role in the healthcare team). Their new role became evident in the way other healthcare professionals interacted with them: as doctors (rather than students). We identified 'other health care professionals' as other residents (both same-year and senior residents), supervisors (medical specialists within their own specialty), and nurses (both nurses and advanced practice providers such as nurse practitioners, anesthetic nurses and midwives). We will first report on individual strategies the residents used in their transition, then on their experiences with strategies other healthcare professionals used to facilitate their transition and, finally, on the residents' perceptions of the impact of organizational strategies on their own adaptation efforts (i.e. individual strategies).

Individual strategies residents used in their transition

We identified five individual strategies the residents used in interaction with other healthcare professionals to adapt to their new role and responsibilities: observing others, asking questions, experimenting, establishing social relationships and seeking information. Residents used these strategies to acquire knowledge on how to perform their new tasks, to behave appropriately and to understand their role in relation to those of other healthcare professionals.

One strategy, *Seeking information,* was aimed at the single goal of acquiring, refreshing or deepening their knowledge (Table 3, excerpt 7), while other strategies such as observing, asking questions, experimenting, and establishing social relationships had multiple goals. For example, residents used the strategy of *Observing others* to learn how to perform tasks and to mirror their peers' behavior (Table 3, excerpt 1-2). They used the strategy of *Experimenting* to understand their tasks and to understand their role in relation to those of other healthcare professionals (Table 3, excerpt 4-5). They used the strategies of *Asking questions* and *establishing social relationships* to behave appropriately and understand the norms within the healthcare team (Table 3, excerpt 3, 6).

Table 3. Individual strategies residents used in their transitions

Individual strategy	Description	Illustrative quote
Observing others	How to do their job, and how to behave as a doctor	**Excerpt 1: "**In the morning, you sometimes do the ward rounds on your own, and other times together [with another resident]. You often observe others and wonder 'Gosh how does that person do that'?" *(resident 6)* **Excerpt 2: "**Look, you learn from observing others. For instance, when you're doing a ward round and you're walking with all the supervisors and residents, and then another resident starts talking to her or his patient and the supervisor is talking to the patient. And you listen how they talk and how they approach patients, how they communicate the problems, and discuss that with the patient. You learn a lot, just by observing and listening." *(resident 2)*
Asking questions	How to behave and how to conform to group norms	**Excerpt 3: "**[…] because look, they're all mirrors. You don't see yourself, how you walk during ward rounds, what kind of attitude you have, how you communicate with nurses, and patients. For me in particular, because I also have a cultural barrier, and also a language barrier, so it's very important what kind of an impression I make on others. And I always keep asking a lot of feedback, from everybody. [Like on] this [my] feedback style, then you really think: 'Oh, am I really like this?' or 'People really see this from me and have such an experience with me, oh interesting!" Then you start reflecting on this feedback and being alert. The next time you're alert to that and make sure that it's going well and [your approach is] not much different from how others do it. I think this is very important, yes." *(resident 2)*
Experimenting	How to do their job, and how to interact with other health care professionals	**Excerpt 4: "**You have to find out what's your own working style […]. How you are going to do your work, how you are going to deal with patients, how you are going to deal with nurses, how you are going to deal with supervisors, and other colleagues. You have to find it all out, and that's quite a lot of work." *(resident 2)* **Excerpt 5: "**And the oncologists there have long working hours, they just scheduled family conversations during the evenings. And, ehm, in the beginning that was okay [I joined them], but at some point I said: 'I don't mind you are doing that [having the conversations], but then you [have to make notes and] create your personal report yourself, because I'm going home'." *(resident 13)*
Establishing social relationships	How to become a member of the health care team	**Excerpt 6: "**You have to get to know the people. For instance, […] how do you approach that supervisor? Yes, you are, ehm. Does that person want me to prepare or learn in advance, or does that person want me to just think about it and, ehm, pass it [to someone else and learn from the discussion that follows]." *(resident 3)*
Seeking information	How to collect information about specialty-specific knowledge, or processes within the department	**Excerpt 7:** '[…] And also, because you're uncertain and don't know exactly, what's expected of you in terms of knowledge and [skill] level. I've often been thinking during the first year: 'I ought to know this, I'll look it up at home'." *(resident 6)*

Residents' experiences with organizational strategies to facilitate their transition

The residents described different strategies other healthcare professionals used to help them adapt. Our data covered all organizational strategies, described by van Maanen and Schein as dichotomies: collective – individual, formal – informal, sequential – random, fixed – variable, serial – disjunctive, and investiture – divestiture.[12]

Some organizational strategies referred to *direct interactions with other healthcare professionals*, for example, whether the residents felt they were treated as individuals or as a group as a whole (Table 4, collective – individual); whether supervisors or nurses approached the residents based on their level of training (Table 4, sequential – random); and whether (and to what extent) the healthcare team created an open and approachable atmosphere or residents felt compelled to conform to the workplace norms (Table 4, investiture – divestiture).

Other organizational strategies were interpreted as *resulting from decisions at system level,* for example, whether the introduction period was made explicit and formalized (Table 4, formal – informal); whether role models or insiders were available (or not) for residents to learn from (Table 4, serial – disjunctive); and whether the residency program was organized within a fixed or variable time frame (Table 4, fixed – variable).

Table 4. Residents' experiences with organizational strategies to facilitate their transition

Organizational strategy	Description	Illustrative quote
Collective	Being treated as (one of the) group of residents, or feeling part of the group of residents	"The transitioning to the academic hospital is challenging, as it is a large organization, impersonal, you are being trained, but in the beginning you don't have the feeling that people know you, especially because you're one out of 40 residents […]." *(resident 7)*
Individual	Being treated as an individual and receiving personal attention	"There were really a lot of approachable supervisors, who were also very education-minded. They let you make mistakes. First they listened to your story, and then [they] said what went wrong, or what might be improved. Just the right way of teaching. And not immediately cutting off [the conversation], when they felt it was shoddy work." *(resident 9)*
Formal	Efforts made by the hospital to ensure that residents meet the required level of knowledge and competence in patient care and PGME training	"Yeah, sure. There are [...] what's good, is that you need to do a course [...] where you learn to take care of acutely ill patients. That's just a very good course. And you need to complete it [that course] before you start doing shifts. And that's something that's very helpful to you as a beginning doctor". *(resident 6)*

Table 4. Continued

Informal	Absence of any effort of the hospital to support residents in their roles as doctors providing patient care, or learners getting PGME training	"I don't know what kind of an introduction period I had [and how long it took], just a few days and then you'd just start working. If I had any doubts [or didn't know what to do], I could just ask, it wasn't a high-threshold [atmosphere], I could just ask my colleagues, [or] senior residents, that was even more easy." *(resident 16)*
Sequential	Being treated as a newcomer and, therefore, not being part of the professional group of residents from the beginning of resident training	"As a first-year resident, you're in a different place than the others [the senior residents]. That's very specific to this place. It sometimes makes you feel a bit, well, a bit isolated, like you're still in kindergarten and the others can already [...]" *(resident 9)*
Random	Being approached as an experienced resident and, therefore, being part of the professional group of residents from the beginning of resident training	"Well, for example, when you have to think about it for a while or don't know it right away, or for them, most residents know that, you're just starting and have to look it up if you don't know the answer. Then you hear them [the nurses] let out a deep sigh and you hear them say 'I'm not a doctor, so you are the one who ought to know [this]', which is kind of implicit. In the end, it'll work out, but if something like this happens more often, it does something to you. *(resident 6)*
Fixed	Goal-setting is within a fixed time frame, regardless the individual needs	"In the first three months, when you're starting, you've three hours of spare time every Tuesday morning to do administrative work. You also get 60 minutes prior to a consultation with a new patient, and 30 minutes prior to a follow-up consultation. And then, after 3 months, there will be no spare time for administration anymore, and the time prior to a consultation will be reduced, so you'll only have 40 minutes prior to a [consultation with a] new patient and 20 minutes prior to a follow-up consultation, which doubles up. So then there's limited [preparation] time available." *(resident 12)*
Variable	Goal-setting is within a variable time frame, dependent on individual needs	"Yes, in the beginning, also during team meetings, the [supervisor] was taking the lead in conversations, and then I gradually took it over." *(resident 12)*
Serial	Availability of others from whom to learn the job	"And at work [in the clinical environment] nurses are used to a lot of new people coming in, but in spite of that, collaboration is very easy. These are positive things. In particular the neonatology department is good at training us. And that's just really nice, it makes the work really nice, that they're just busy. So these are the positive things, yes." *(resident 10)*
Disjunctive	Absence of others from whom to learn the job	"That you have to learn role-specific things, that's one thing you should be aware of beforehand. And those are the things everyone expects you to be able to do, and there's no active learning moment […] for example, if you don't know how to plan your day, nobody is going to help you, [nobody will explain] 'this is how outlook works.'" *(resident 3)*

Table 4. Continued

Investiture	Important people such as supervisors and the program director(s) are approachable, and create an open atmosphere	"That's exactly right, because that's my experience too. When you started at the Oncology Department, there too, children with cancer died there too, but it's such a highly specialized department, that at handovers, there was always someone there to ask questions, at least at that time. That does make things easier." *(resident 7)*
Divestiture	In their interaction with supervisors, residents feel compelled to adjust to the supervisors' preferences	"And then, When you get into a training situation, then it makes sense. Those supervisors don't know you, and they're pulling the strings. And then, you feel worthless again, you can't do anything [right], it also feels like you're allowed to do far less, at least I thought so." *(resident 9)*

Residents' perceptions of the impact of organizational strategies on their own adaptation efforts

We discovered that some organizational strategies impacted the residents' own adaptation efforts. Some organizational strategies seemed to facilitate and others seemed to hinder residents' efforts to adapt to their new role. Residents differed in whether they experienced a specific strategy as facilitating or hindering, as we will show in the following paragraphs.

The individual strategy of *observing others* seemed to be facilitated by availability of role models or insiders such as peers or nurses to socialize the residents (Table 5, Excerpt 1). However, we found differences in perceptions of the impact of absence of role models. Some residents felt that it facilitated their own adaptation efforts, since they felt they had greater autonomy when there was no one to observe them. Apparently, their desire to work more independently was more important for them than having an example of how things should be done (Table 5, Excerpt 2). Others perceived the absence of a role model as a hindrance, because they missed someone from whom they could copy being a doctor (Table 5, Excerpt 7).

The individual strategy of *asking questions* seemed to be facilitated by the approachability of other healthcare professionals**.** Peers and nurses were often easily approachable, whereas the approachability of supervisors and program directors varied. Examples of the approachability of supervisors that stimulated residents to ask questions were: making time for a feedback conversation, encouraging residents to choose their own route or rotations and encouraging residents to actively engage in patient-related discussions (Table 5, Excerpt 3). In other situations, however, residents felt they had to adjust to the (implicit) workplace norms and behaviors, which prevented them from asking questions and made them feel they had to meet other healthcare professionals' expectations (Table 5, Excerpt 8).

The individual strategy of *experimenting* seemed to be facilitated by the use of an informal organizational strategy, so absence of a formal structure. In such an atmosphere, learning took place within the social networks surrounding resident's position and, thus residents were encouraged by their supervisors to set their own learning goals (Table 5, Excerpt 4). Whereas some residents took advantage of the lack of formality, others did not appreciate it and felt that it hindered their adaptation efforts (Table 5, Excerpt 9).

Residents reported that *establishing social relationships* takes time. Residents often rotated to new workplaces, which complicated their efforts to establish social relationships. Being acquainted with each other facilitated collaboration (Table 5, Excerpt 5). Absence of social relationships, however, hindered collaboration, because residents and other healthcare professionals did not know what to expect from each other (Table 5, Excerpt 10). Some residents experienced to be seen as a member of a collective of residents rather than individuals, which prevented them from building social relationships (Table 5, Excerpt 11). Feeling part of the peer group of residents was perceived to facilitate social relationships, because it contributed to a pleasant working atmosphere and collaboration (Table 5, Excerpt 6).

Table 5. Residents' perceptions of the impact of organizational strategies on their own adaptation efforts

Individual strategy	Organizational strategy	Description	Illustrative quote
Facilitating			
Observing others	Serial	Having a role model facilitated observing others	**Excerpt 1: "**Observing, yes, just observe how they do it. With difficult people [patients], for instance, how do you start a conversation without making things awkward right away? Or, erm, I was lucky to be guided by some experienced psychiatrists, who were a lot older, and close to their retirement, but who really have a wealth of experience. And that's really exciting, to be able to look over their shoulders. This doesn't happen quite often, due to time constraints. But if it works out, then it is very instructive. It also depends on your learning style, but I really like to observe others […]" *(resident 5)*
Observing others	Disjunctive	Absence of a role model prevents residents from observing others, which is perceived as facilitating	**Excerpt 2: "**In the ambulance, I work there as well, and I've been doing this for years, there I also learn things [...], but then I learn from the situation and no one's observing me, or assessing me. Oh, that's great *(resident 8)*

Table 5. Continued

Asking questions	Investiture	When other health care professionals were approachable, residents could easily ask questions	**Excerpt 3: "**Well, it's an open atmosphere [low threshold], you might say, you can ask everything. Asking [questions to] supervisors, it is, even though [you ask] something simple, it's no big deal. […] There's, of course, a functional hierarchy, but it isn't getting in your way." *(resident 4)*
Experimenting	Informal	An informal atmosphere facilitated experimenting behavior	**Excerpt 4:** "But as long as I meet their expectations, I can also say: 'But I also want [to do] that task, which is actually not part of my job [role] at all, but which I would like to do for once'. Then they'll say: 'Okay, fine, you do that.' There I have more opportunities to design my own training program." *(resident 3)*
Establishing social relationships	Individual	Knowing each other facilitated collaboration	**Excerpt 5:** "In hospital A, there's a different atmosphere, you know everyone, you know the people, the pediatricians, but also the physiotherapists, the psychologists, the dieticians, you know the whole team. So that facilitates your work, being a real part of the team." *(resident 7)*
Establishing social relationships	Collective	Feeling part of the group of residents contributed to a good atmosphere	**Excerpt 6: "**Well, what I find positive is that you work here with a large group of residents, so the atmosphere within the group is just very good. A lot of togetherness too. I think that's something very positive. And the nurses are used to work with new residents, but in spite of that [working with inexperienced residents] the collaboration is going very well. Those are positive things." *(resident 10)*
Hindering			
Observing	Disjunctive	Absence of a role model limited residents' opportunities to observe others	**Excerpt 7:** "[…] but you almost never get the chance to walk along with [job shadowing] your supervisor, you do your own tasks, so you can't really 'copy-paste' the supervisor's behaviors. In the OR you can, of course, but in the outpatient clinics you can't. And copying and seeing that [the behaviors of the supervisor in the outpatient clinic] may occasionally be educational as well, but also talking about cases and patients you see, you learn a lot from that too." *(resident 14)*

Table 5. Continued

Asking questions	Divestiture	Feeling forced to adapt to the workplace norms prevented residents from asking questions	**Excerpt 8: "** […] That you sometimes don't dare to say anything, even though it would be very educational. And, that yes sometimes, they roll over you in the beginning, when you can't really say or do what you want of would like to do, [have no opportunity to discuss] how you can improve, how you feel about it. Often I thought afterwards: 'I should have said this, or should have done that'." *(resident 6)*
Experimenting	Informal	Absence of an introduction program forced residents to experiment, which was perceived as hindering the transition	**Excerpt 9:** "And also the shifts you weren't actually trained for, there was no [formal] introduction program. Particularly this was very tough for me." (*resident 6)*
Establishing social relationships	Individual	Absence of social relationships hindered collaboration	**Excerpt 10: "**At the beginning it was difficult, you don't know those people yet. Yes, they have certain way of working, and they see a new resident every few months. So that's sometimes difficult. Well, once you've been there for a while, you'll get to know them a little bit, [and] a little bit about what to expect. Then it gets better and better." *(resident 12)*
Establishing social relationships	Collective	Absence of social relationships caused residents being treated as a collective (part of the group of residents)	**Excerpt 11: "**Interaction with supervisors who don't know you and you're just a dime in a dozen [treat you as a collective], they see so many residents […] you just have to prove yourself again. These factors prove that you really feel like I can't do anything [right], I have to start from zero again, ehm, prove myself again, but also find myself in this organization. *(resident 9)*

Discussion

Our study showed that residents' transitions involve a dynamic social interplay between residents and other health care professionals (4,71). Using data of qualitative exploratory, in-depth interviews, we found that residents used five individual strategies to learn how to perform their new tasks, behave appropriately and understand their role in relation to those of other healthcare team members: observing, asking questions, experimenting, establishing social relationships, and seeking information. They used these strategies to be(come) accepted as members of the healthcare team. The residents also experienced a variety of strategies other health care professionals used to facilitate their transition. We identified these strategies as the six organizational tactics that were described in

Organizational Socialization literature as dichotomies: collective–individual, formal–informal, sequential–random, fixed–variable, serial–disjunctive, investiture–divestiture. Residents experienced the use of organizational strategies at both interpersonal and system level. Organizational strategies could facilitate or hinder residents' own adaptation efforts. We found differences in perception of whether a specific organizational strategy facilitated or hindered a smooth transition.

Our findings indicate that *individual* strategies do not only facilitate residents' socialization (learning how to behave as a doctor and be(come) a member of the health care team),(100,101) but also facilitate their role-based performance (learning practical knowledge and skills). Similar findings were observed in undergraduate medical students: individual strategies (e.g., seeking information and feedback, negotiating tasks and building relationships) increased students' understanding of socialization aspects such as culture and social integration as well as their new role and mastery of tasks (52). This knowledge is useful for residents, since they will face many transitions in their future careers (1,6,17).

Moreover, we found that the organizational strategies were used at interpersonal and system level. Our study confirms findings from research among transitioning nursing graduates and medical students, showing that the quality of transitions is influenced by both supportiveness of senior staff and safety of the environment (57). Our finding adds to the existing literature by showing that residents do not merely interact with professionals from their own profession, but also interact and learn within the broader health care team consisting of doctors from their own specialty as well as nurses and advanced practice practitioners (40,102). Indeed, literature suggests that learning opportunities arise within interprofessional healthcare teams since team members can learn from each other's work contexts and activities (103,104). The added value of this study is that it shows *which* strategies other health care professionals can use to influence the behaviors of residents in transition, for example, welcoming residents and making them feel part of the resident group, approaching residents at their level of training and being an approachable colleague.

The residents felt that the strategies other healthcare professionals used to help them adapt impacted their own individual adaptation efforts. To our knowledge, this is the first study showing the perceived impact of organizational strategies on newcomers' individual strategies, which extends the theory of organizational socialization (44,45). For example, some residents felt that absence of a role model facilitated their own adaptation efforts because it gave them the opportunity to work more autonomously, while others felt that it hampered their adaptation efforts because they did not get the chance to observe and learn from a role model. In contrast, program directors did not identify absence of

a role model as a strategy they could use (77). To our knowledge, other studies did not address absence of a role model, but instead they showed the tension between support and autonomy (11,105,106). Residents' responsibilities did not always match their desired degree of autonomy, but were perceived as either too excessive or too limited (11,105,106). Consequently, supervisors, nurses and peers can (learn to) consciously apply the strategy of 'being a role model or not' and find balance between residents' needs for support and autonomy. These new insights can help raise awareness of possible interactions between strategies that newcomer residents' and other health care professionals can use to optimize transitions. Both groups could consider responding to each other's needs and interests by adapting their strategies to individual preferences (77).

Practical implications

Three practical implications logically follow from the results of our study. First, we recommend to incorporate information about individual adaptation strategies into onboarding programs for residents. So far, these programs mainly focus on clinical aspects of residents' new role or reflective practice during transition periods through coaching or visual arts-based activities (26,28,32,33). Second, knowledge and awareness of organizational strategies can inform the design of onboarding programs for residents. Decisions have to be made, for example, on whether the introduction period will be formal or informal, whether the role of role models or mentors will be made explicit or not and whether the introduction period will be organized within a fixed or a variable time frame. Third, at interpersonal level, we recommend to let the entire health care team play a role in onboarding programs for residents. From the literature, we already know that nurses often take an important informal role in the onboarding of new residents (40). To empower the entire healthcare team to play a role in residents' onboarding, we recommend to develop interprofessional faculty development initiatives for supervisors as well as nurses, same-year and senior residents and administrative staff (107). These initiatives should respond to the individual needs of residents, since our study found that residents have different preferences for how they want to be guided during transitions.

Strengths, limitations and future research

A strength of our study is that we explored residents' perspectives on how social interactions with other healthcare professionals can help them adapt to residency, which filled a gap in existing literature. As residents' socialization processes involve interactions with many other healthcare professionals, future research should include (perceptions of) the entire interprofessional environment surrounding the resident, including supervisors, nurses, advanced practice practitioners, senior residents and peers. To improve residents' transition and promote collaboration with other healthcare professionals, it is essential that all health care professionals acquire knowledge of one another's work contexts and activities (103). A possible lens to explore the perspectives of different types of healthcare

professionals and help them understand each other's values and practices (104) is using social capital theory and social network analysis, which allows for in-depth identification of interpersonal relationships and understanding of how these may influence residents' transitions. (108,109)

Our study also has some limitations. The interview guide broadly addressed how residents reflected upon their first year, allowing us to ask deeper questions that responded to their answers. During the template analysis we decided to apply the theory of Organizational Socialization (OS), which may have reduced the depth of information gathered. However, this can also be considered a strength since OS theory contributed to a more in-depth understanding of the socialization strategies used in residents' transitions (43). Moreover, using existing theory as a lens to inform data analysis is common in qualitative research based on a constructivist paradigm (42,43).

Another limitation may be, that we did not perform any member checking. From a positivist or post-positivist view this might be seen as a limitation, because we did not ask the participants to validate the interview data. From our constructivist perspective, however, we will argue that the added value of member checking is limited, because we interpreted and compared the entire data set using our theoretical and methodological expertise. If the interviewees had checked the interviews, we would doubt whether the addition of their perspectives would be meaningful as they did not have the overview of the entire data set and the theoretical and methodological expertise (82,110).

Conclusion

A smooth transition to residency requires a strategic approach from both newcomer residents and other healthcare professionals. Residents can use different individual adaptation strategies and other healthcare professionals can support them. We identified five individual strategies that helped residents learn how to perform the tasks that belonged to their new role, behave appropriately and understand their role in relation to those of other healthcare team members. The residents mentioned different (organizational) strategies other healthcare professionals used to help them adapt, which we could cluster into how other healthcare professionals approached them and how the system around their training program was organized. We found that organizational strategies can positively or negatively impact residents' own adaptation efforts. However, residents differed in perceptions of whether a specific organizational strategy was facilitating or hindering.

Chapter 4

Learning the ropes: strategies Program Directors use to facilitate organizational socialization of newcomer residents, a qualitative study

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Background

Many residents experience their transitions, such as from medical student to resident, as demanding and stressful. The challenges they face are twofold: coping with changes in tasks or responsibilities and performing (new) social roles. This process of 'learning the ropes' is known as Organizational Socialization (OS). Although there is substantial literature on transitions from the perspective of residents, the voices of program directors (PDs) who facilitate and guide residents through the organizational socialization process have not yet been explored. PDs´ perspectives are important, since PDs are formally responsible for Postgraduate Medical Education (PGME) and contribute, directly or indirectly, to residents' socialization process. Using the lens of OS, we explored what strategies PDs use to facilitate organizational socialization of newcomer residents.

Methods

We conducted semi-structured interviews with 17 PDs of different specialties. We used a theory-informing inductive data analysis study design, comprising an inductive thematic analysis, a deductive interpretation of the results through the lens of OS and, subsequently, an inductive analysis to identify overarching insights.

Results

We identified six strategies PDs used to facilitate organizational socialization of newcomer residents and uncovered two overarching insights. First, PDs varied in the extent to which they planned their guidance. Some PDs planned socialization as an explicit learning objective and assigned residents' tasks and responsibilities accordingly, making it an intended program outcome. However, socialization was also facilitated by social interactions in the workplace, making it an unintended program outcome. Second, PDs varied in the extent to which they adapted their strategies to the newcomer residents. Some PDs used individualized strategies tailored to individual residents' needs and skills, particularly in cases of poor performance, by broaching and discussing the issue or adjusting tasks and responsibilities. However, PDs also used workplace strategies requiring residents to adjust to the workplace without much intervention, which was often viewed as an implicit expectation.

Conclusions

PDs' used both intentional and unintentional strategies to facilitate socialization in residents, which may imply that socialization can occur irrespective of the PD's strategy. PDs' strategies varied from an individual-centered to a workplace-centered approach to socialization. Further research is needed to gain a deeper understanding of residents' perceptions of PD's efforts to facilitate their socialization process during transitions.

Background

Residents experience many transitions throughout their educational career, not only the transition from student to resident but also transitions between rotations during residency training (17,135). These transitions can be demanding and stressful for them for several reasons (6,21). First, residents have to adapt to a demanding role within a new context, which involves profound changes in tasks, responsibilities and expectations (1,136). Second, residents need to learn how to perform their social roles, find out how to function well in a team and adapt to existing norms and customs. In organizational sciences, these challenges are referred to as Organizational Socialization (OS) which can be defined as 'a process by which an individual acquires the social knowledge and skills necessary to assume an organizational role' (44). In doing so, newcomer residents become part of existing social, cultural and political practices and traditions within a department (137). Therefore, 'learning the ropes' seems to be an important challenge in transitioning from one role to another (138).

Despite a growing interest in transitions in medical education, guidance (by others) to facilitate socialization of residents in transition has rarely been a subject of research. In Health Professions Education (HPE) literature, the topic of socialization has widely been discussed from different perspectives. A commonly used perspective that aims to understand the development of individual newcomers is Professional Identity Formation (PIF) (37,101). In this perspective, socialization is seen as one of the driving forces behind the transformation of the individual from a layperson to a skilled professional (37). Cruess et al. (37) recognized that socialization and thus social interaction between individuals occurs in communities of practice. However, most research (139,140) solely focuses on the perspective of the individual apprentice. It seems that PIF literature offers limited explanation about how 'others' in the community of practice perceive and support the individual apprentice's socialization process.

The concept of OS offers a theoretical lens to understand socialization from the perspective of both the individual and the 'other'. As Chao (45) stated, 'OS is a learning and adjustment process that enables an individual to assume an organizational role that fits both organizational and individual needs'. Based on a meta-analysis of 12.000 graduates in the corporate field, Bauer and Erdogan proposed a general, linear three-phase model of organizational socialization (54,141). This model is often visualized as a linear three-phase model describing the socialization processes of a newcomer: phase one refers to factors related to new employee characteristics, new employee behaviors and organizational efforts to facilitate the transition; phase two refers to newcomer adjustment, indicating how well a newcomer in transition is doing; and phase three refers to new employee socialization outcomes (141). In the field of Health Professions Education, this model has

been used in studies on the transition of undergraduate medical students into clinical clerkship (142), and graduate nurse transition (57). In these studies, the authors suggested to optimize transitions by organizational efforts, such as a formal or informal orientation, a limited number of workplace changes in the first year of practice, mentorships or other documented strategies of social support (57,142). Using individual perspectives of undergraduate medical students in their clinical rotations, Atherley et al. highlighted the role of insiders, i.e. faculty, to ensure adequate socialization to smooth the transition into a new clerkship (142). However, in the context of the transition from student to resident, it has not yet been studied to what extent insiders, such as residency program directors (PDs), facilitate newcomer residents' transition into clinical practice and how newcomer residents are integrated into clinical teams. The latter refers to phase 1 of the aforementioned organizational socialization model: organizational efforts to facilitate the transition (141). To shed more light on residents' socialization processes and advance the understanding on this topic, we investigated program directors' (PDs) perspectives on the way they facilitate and guide newcomer residents.

In teaching hospitals, PDs play an important role in the socialization process of residents through both frequent interactions during daily work activities and their formal leadership position. In daily practice, PDs are part of the community of practice in which newcomer residents enter. Here, socialization occurs through social interaction between individuals (i.e. members of the health care team), which advances learning (37). PDs' formal leadership position comprises responsibility and accountability for the structure, organization and administration of the entire residency program (143). Despite the role PDs have in the socialization process of newcomer residents and their responsibility and engagement in the residency program, it is yet unknown *how* they support the socialization process of newcomer residents. Insight into PDs' strategies to foster newcomer residents' transition and socialization can help reduce stress among residents during transitions (144).

In a first step to explore this gap in the literature, we decided to do a qualitative study to gather rich and meaningful information and explore the full range of what a PD can do to foster socialization. We formulated the following research question: What strategies do PDs use to facilitate organizational socialization of newcomer residents? To answer this research question, we conducted a multi-site, qualitative study using semi-structured interviews and inductive thematic data analysis (145). Subsequently, we used Organizational Socialization as an analytical lens to describe and better understand PDs' efforts to facilitate residents' socialization, because OS encompasses organizational strategies to structure experiences of an individual in transition from one role to another (44). Finally, we used inductive analysis to identify overarching insights.

Methods

Study setting – context

This study was conducted in one academic center and seven teaching hospitals in the Netherlands. We included Program Directors, associate Program Directors and supervisors (from here on named PD) who were members of a dedicated team responsible for Postgraduate Medical Education (PGME) of residents. A PD can be responsible for up to 75 residents. PGME consists of competency-based education that meets national requirements (70) and is structured into specialty-specific national curricula with local training plans. Based on these local training plans, the PD and the resident together create a personal training plan that keeps track of individual competencies and learning needs (70). PDs need to develop pedagogical competencies that can be obtained through (mandatory) pedagogical training (e.g. train the trainer courses). PDs are supported by managerial / administrative assistants, who look after the placement side of residents' employment. Every hospital has a central PGME committee consisting of several PDs and residents from different specialties, which is chaired by a dean. The committee is responsible for the quality and collaboration of the different PGME programs within the hospital (70). In all participating hospitals, PGME committees are supported by educational (policy) advisors and scientists.

Participants

To ensure participants were able to describe their experiences with newcomer residents in transition, participants were required (1) to work as a PD, associate PD or supervisors in a dedicated team that was responsible for PGME of residents in a hospital-based specialty and (2) to collaborate with newcomer residents on a regular basis. We purposively sampled (146) PDs from different specialties –covering the entire spectrum of surgical, medical and supportive specialties– and different hospitals, to ensure diversity in PGME programs and work environments. This broad sample was intended to elicit rich and meaningful information and a broad variety of descriptions to help answer the research question (97), which could in turn facilitate transferability to other settings (147). Participants were invited by e-mail, stating the purpose of the study and assuring that all data would be treated confidentially, anonymity would be guaranteed and participants could withdraw at any time (147). Of the 39 PDs we invited, 17 agreed to participate and were interviewed. Six participants worked at an academic center and eleven worked at different non-academic teaching hospital. Four PDs did not meet the inclusion criteria since they did not collaborate with first-year residents on a regular basis. They suggested to interview other faculty instead, i.e. associate PDs and supervisors who were dedicated to guiding and supporting first-year residents, and were working in a dedicated team with the PD. Characteristics of the participants are shown in Table 1.

Table 1. Characteristics of the participants (n = 17) interviewed in this study

Attribute	Number of participants
Gender	
Female	2
Male	15
Hospital	
Academic hospital	6
Non-academic teaching hospital	11
Specialty: surgical	
Surgery	4
Obstetrics and Gynecology	3
Specialty: non-surgical	
Internal medicine	5
Radiology and nuclear medicine	2
Pediatrics	1
Anesthesiology	1
Pathology	1
Role	
Program Director	13
Associate Program Director	2
Dedicated supervisor responsible for PGME of first-year residents	2

Study design, data collection and analysis

Study design

We used a theory-informing inductive data analysis study design (42). We conducted semi-structured interviews to collect data that was relevant to our research question. Data analysis involved three distinct phases: (1) an explorative, a-theoretical, inductive phase, in which we coded the interview transcripts without using a predefined coding scheme and grouped the codes into themes (thematic analysis), which is an appropriate method to 'identify, analyze, report patterns within the data and helps to identify or examine underlying ideas, assumptions, and conceptualizations' (145). (2) a theory-driven, deductive phase, in which we used the analytical lens of Organizational Socialization (OS) tactics (44) to deepen our understanding of the constructed themes and further refine and make sense of the phenomenon studied (43). (3) in the final phase, we moved from deduction to induction and sought to identify and explicate overarching insights (87).

Data collection

In the period April to June 2018, the first author conducted semi-structured interviews with all participants. Two other researchers (JP, MB) accompanied and observed the first author

in 4 interviews and the remaining interviews were conducted by the first author alone. Including these two researchers in the interview process contributed to crystallization, as their perspectives provided us with a more complex, in-depth, but still thoroughly partial understanding of the issue (97). The interviews were guided by an interview guide (Appendix 1). To ensure rigor (97) GG made field notes after every interview and debriefed with JP and GW to discuss the responses of the interviewees. The debriefings provided additional insights into un- or underexplored topics that seemed relevant to the research question. The interview guide was rephrased accordingly and un(der)explored areas were elaborated on in consecutive interviews (146) as an iterative part of the research cycle (147). The interviews lasted 35 to 90 minutes, were recorded and transcribed verbatim using F4transkript (148). Data collection was continued until no new information was obtained from PDs' explanations of how they facilitated newcomer residents' transitions.

Data analysis

Data analysis consisted of 3 phases, as described above (inductive – deductive – inductive). Phase 1 (inductive): We performed thematic analysis using the steps proposed by Braun et al. (145). First, two authors (GG and JP) familiarized themselves with the data. Then, the first author inductively coded all interviews line by line, without trying to fit it into a pre-existing coding frame (145). Next, GG and JP moved from coding to searching for initial themes. Semantic analysis showed the PDs' perspectives of tasks residents performed during the first period of their new job. After that, the initial themes were reviewed within the team and we noticed that the PDs also focused on the experiences of residents in transition. We became interested in the examples the PDs mentioned to illustrate their support to residents in this phase of training. Therefore, we decided to expand our scope from solely focusing on residents' tasks to including PDs' underlying ideas, assumptions and conceptualizations (43,145) about newcomer residents' transition, and their support during the transition period. Phase 2 (deductive): To further shape and define the initial themes, two researchers (GG and RD) deductively compared the data (149) to the descriptions of van Maanen & Schein's (44) concepts of OS tactics, which will be described in more detail in a separate section below. Phase 3 (inductive): To get richer insights, we used an inductive approach and synthesized our findings to uncover overarching insights (87).

Throughout the analytical process, the entire research team held regular meetings to review the coding process, discuss the data interpretation and reach a mutual understanding of codes and themes. The team meetings, therefore, contributed to the analytical process and ensured the credibility and the consistency of the interpretation. The first author maintained an audit trail to keep track of the team's thinking process and document analytic decisions. Qualitative data analysis was supported by Atlas.ti, version 8 (96).

Analytic framework

We used OS theory as a lens to further interpret the findings of our thematic analyses, in particular the description of socialization tactics. These tactics are characterized by how others in the organization let newcomers adjust to their new role. This teaching and learning process is referred to as the OS process. Each tactic is represented as a distinguishable set of events that affect individuals in transition. The overarching goals of the OS process is the sustainability of the organization, through transmission of values and information (44). Van Maanen & Schein proposed 6 different OS tactics, which are often used in empirical research in organizational literature (53,78,150). A summary of the tactics is provided in Table 2. Each tactic is illustrated by describing the underlying two opposites.

Reflexivity

From our constructivist perspective, we are aware that realities are socially constructed (81) and that our interests, perspectives and backgrounds shaped the research and interpretation of the data throughout the study (97,151). All members of the research team have been experiencing transitions: from school to work and from one job to another, which shaped our thoughts in this research process. Two researchers were experienced in newcomer transitions from the leadership perspective. In their respective roles as PD (GW) and leader of a Research Network (DJ) they supported many newcomers in their first job. Three researchers, a resident in anesthesiology (GG), a resident in psychiatry (RD) and a PD of anesthesiology (GW), worked in the researched context. Their experiences helped the entire team understand PDs' views and terminology, and embed PDs' descriptions into the lived experience (82,87). However, a shortcoming of being an insider and too close with the participants in research could be that we as researchers assume and take certain situations for granted. To identify our preconceptions, we strived to build a team of researchers with various backgrounds: two team members worked outside the context under study (a professor in medical education with a background as a veterinarian, and a senior researcher with a clinical background and having the experience of working in non-clinical roles for the past 30 years).

Table 2. Description of Organizational Socialization Tactics; summary of Van Maanen and Schein (44)

Tactic	Description
Collective and individual socialization tactic	The degree to which newcomers are socialized in a group with common experiences, or separated from other newcomers so they have 'a more or less unique set of experiences'
Formal and informal socialization tactics	Whether newcomers participate in a structured program tailored to their role of newcomer, separated from regular employees, or in a program that does not distinguish the newcomers' role from other roles, so they learn their new role through trial and error
Sequential and random socialization tactic	The degree to which the organization plans the socialization as a gradual process or more random, when the sequence of steps is unknown or ambiguous
Fixed and variable socialization tactic	The degree to which the organization expects that socialization occurs within a fixed timeframe, or more variable giving newcomers few cues as to when to expect a given boundary passage
Serial and disjunctive tactic	The degree to which newcomers are socialized with the help of role-models, or not
Investiture and divestiture socialization tactic	The degree to which organizations build upon the capabilities and values newcomers acquired previously and affirm their gained self-image, or deny and strips away certain newcomer characteristics and rebuild newcomers' self-image

Results

During our analysis, we identified six strategies the PDs used. We deliberately chose to use the word strategies, because this word most closely matches the wording of the participants in the interviews. PDs' strategies are presented as themes and compared with the corresponding OS tactics, using the same order as they are mentioned in the paper of Van Maanen and Schein (7) (see Table 3). Then we will provide more detailed descriptions of the strategies, which is a more abstract summation of the issues at hand. The descriptions are supported by illustrative quotes. Finally, we will present two overarching insights we uncovered.

Table 3. Comparison between strategies the program director used and the socialization tactics OS

Strategy	Description	Name tactic in OS
Approaching newcomer residents as a group or as individuals	This strategy sets out how PDs focus on both group and individual level. Some PDs actively support the socialization process at group level by organizing group activities. Other PDs observe the socialization process of peer groups of residents without any active involvement. PDs' support of the socialization process of individuals mainly by focusing on residents with poor performance.	Collective and individual socialization tactic
Facilitating newcomer residents in learning their new role	This strategy describes PDs' support to residents in learning their new role, which varies from facilitating newcomers with an extensive introduction program to implicit learning of their new role at the workplace. Once an introduction program is implemented, socialization is often an unintentional effect rather than an explicit learning objective.	Formal and informal socialization tactic
Letting newcomer residents get acquainted with many supervisors	This strategy outlines how PDs let newcomers get acquainted with other health care professionals (doctors, nurses, secretary, et cetera). Some PDs actively facilitate direct contact between newcomer residents and other health care professionals. Other PDs do not introduce newcomers to other health care professionals.	Sequential and random socialization tactic
Responding to the development of newcomer residents during their socialization process	This strategy focuses on how PDs let newcomers adjust to their new role over time. Some PDs change the content of the role after a fixed time frame without taking the individual residents' development into consideration. Other PDs, however, change the content of the role without pre-defining a time frame, taking the residents' individual development into consideration.	Fixed and variable socialization tactic
Making use of role modeling	This strategy sets out that PDs often make use of role modeling to facilitate the socialization processes of residents. Other health care workers as well as the PDs themselves can be role models. If PDs perceive to be a role model themselves, they vary in the extent to which they make their role modeling behaviors explicit. Unlike OS theory, no examples of socialization without role modeling emerged from the data.	Serial and disjunctive socialization tactic
Acting upon expectations of newcomer residents' adjustment to their new role	This strategy describes the PDs' expectations of newcomer residents' adjustment. Some PDs adapt their approach to fit newcomer residents' characteristics, others expect newcomer residents to adjust to the (implicit) norms of the workplace.	Investiture and divestiture socialization tactic

Approaching newcomer residents as a group or as individuals

This strategy describes the way the PDs approached newcomer residents' socialization. Some PDs separated newcomer residents from their more experienced peers, and other health care professionals. As such, PDs actively contributed to residents' socialization process, because it appeared as a team building activity.

'In the first year they've got radiation training, which is a three-and-a-half week course [which is in another city, so they have to stay overnight] (…) so then, they definitely get to know each other very well.' (P12).

Other PDs acknowledged the importance of collective, group socialization, i.e. as a group of newcomer residents. However, PDs were not actively guiding this socialization process.

'Well, I think it's a sign that the group atmosphere's just fine (…) I think it's something that's just growing and not something we've arranged.' (P7).

However, the PDs agreed upon the importance of group processes in newcomer residents' socialization. Since residents worked under similar conditions and faced similar challenges, they could support each other in both work and private situations.

'They also do things together. This contributes to an overall feeling of safety and comfort. The group atmosphere's really important.' (P14).

In contrast to approaching newcomers as a group, we also found examples of approaching newcomers as individuals. This approach was mainly used in situations where residents were performing poorly or even failing. As a PD signaled:

'I don't see it as my job to listen to what a nurse and a resident are discussing, but I do consider it my job when a resident's wandering around and not in charge of the processes, failing in the emergency department. Then it's interesting to find out why it happens and why he gets stuck.' (P13).

In short, PDs approached residents both at group and individual level. The strategy of approaching newcomers at group level was described as both explicitly organized by the PD and happening by coincidence. In OS, the strategy of approaching newcomers as a group or as individuals is called the collective and individual socialization tactic.

Facilitating newcomer residents in learning their new role

This strategy includes the way the PDs guided newcomer residents through the process of learning their role. Most PDs offered an introduction program to help newcomer residents to get started and familiarize themselves with their new role. However, only one PD explicitly mentioned that socialization was part of this program.

'I made a schedule based on which residents can take a look at different laboratories with various equipment [and process demands] (…) so they can spend half a morning at one

laboratory and then half a morning at another, to get to know the people, each other' (P16).

In the other interviews, however, PDs stated that socialization was unintentional, even if an introduction program was provided.

Next to a formal introduction program, PDs strategy to take residents through the process of learning their role could often be characterized as facilitating implicit learning. The PDs described that the socialization process just happened naturally:

'Ehm, but in an OR complex, you [residents] are guided by colleagues and also by experienced nurses, directly, indirectly, directive or in all kinds of different ways (…) and that involves implicit learning. You can't explain it, but it's really important (..) So it also happens in the emergency department, I don't know to which degree, but it happens for sure.' (P13).

In summary, PDs' strategy to facilitate residents in learning their new role varied from a structured introduction program to implicit learning. When an introduction program was offered to newcomer residents, socialization often occurred as an unintentional effect and was rarely mentioned explicitly. In OS, this strategy is called the formal and informal socialization tactic.

Letting newcomer residents get acquainted with many supervisors

This strategy refers to how PDs let newcomer residents get acquainted with many supervisors. Some PDs organized newcomer residents' work in such a way that at the beginning they only collaborated with a single or a few supervisors. The PDs did this by delineating their tasks and responsibilities. They increased the complexity of the residents' tasks and responsibilities over time and, consequently, the number of supervisors increased. In other words, the PDs explicitly structured the process in which residents became acquainted with many supervisors, which is part of the socialization process. This is illustrated by the next quote:

'We gradually increase the complexity, for instance, (…) by [increasing] the number of supervisors the resident collaborates with on a daily basis. In the beginning they [the residents] start with one (job-related task), then they have 2 supervisors, whilst there are 18 in total. (..) Later on, the number of residents' tasks increases. And, as a consequence, residents have to work with many other supervisors' (P16).

Other PDs did not organize the process of getting acquainted with many supervisors. Therefore, newcomer residents had to get used to many new supervisors in a short period of time. The PDs recognized that this was challenging for newcomer residents.

'Well, one aspect is: many supervisors, many opinions. (...) With a lot of supervisors, it's sometimes hard [for newcomer residents] to get a little grip [on the situation]: one supervisor absolutely does not allow method A, while another insists on using it, so there's sometimes a difference [in opinion], which can be a bit frustrating. You're looking for a single recipe [a standard way of doing things], and then it takes a while to discover that it can be done in many different ways' (P1).

This quote illustrates that socialization occurs in the workplace, however it seems to happen unintentionally. In summary, the strategy of getting acquainted with many supervisors ranged from explicitly organizing the residents' tasks and responsibilities, through gradually increasing the complexity of their tasks and responsibilities and the number of supervisors over time, to making no arrangement at all. In all situations socialization occurred, intended and unintended. In OS, this strategy is called the sequential and random tactic.

Responding to the development of newcomer residents during their socialization process

This strategy shows how PDs handle differences in newcomer residents' development over time. Some PDs changed newcomer residents' tasks and responsibilities after a fixed time frame and, therefore, did not consider differences in development between residents. As one PD illustrated:

'Erm, we've a six-week rule, six weeks of introduction, and during this period they work for a couple of weeks in the Cardiac Care Unit [in which patients with presumed cardiac pathology are diagnosed]. And in this hospital, residents also do cardiology night shifts at the nursing ward for a couple of weeks because, of course, you have to know a little about how things work there. And they're in the emergency department for a few weeks.' (P7).

Other PDs did not change newcomer residents' tasks and responsibilities after a fixed time frame but customized supervision based on level of development. In other words, the PD had a flexible time frame for changing the tasks and responsibilities of individual residents. As one PD mentioned:

'And we also know [the resident's level of performance]. When we do shifts, you also want to check out the resident you'll be working with, then you know exactly what the resident can or cannot do. So, it's not so much that you have to 'pass that test', but rather that we adjust the level of supervision to the level of performance of the resident' (P12).

In short, how PDs responded to newcomer residents' development over time varied from treating every resident the same within a set period of time and changing their tasks and

responsibilities accordingly (the transition process has a fixed time frame),to adjusting tasks and responsibilities to fit individual newcomer residents' development (based on a flexible time frame). In OS, this tactic is called the fixed and variable socialization tactic.

Making use of role modeling

This strategy refers to how PDs use role modeling to support the socialization process of residents. All PDs mentioned that experienced colleagues, such as senior residents and other health care workers like supervisors, nurses and midwives, served as role models. As a PD stated about senior residents being role models:

> *'Well, you often see, of course, that senior residents already know this [how things work] a little bit and they, of course, are a role model for their younger buddies. ('…') And in general perhaps a bit more accessible, approachable as a buddy (…).' (P6).*

Some PDs were aware that residents saw them as a role model. One PD said:

> *'But I, I still value the master-apprentice relationship. I also occasionally do the handover myself. So they have to see how I do it, and they can just mirror me [my actions or behaviours].' (P5).*

Others assumed they were role models themselves, but did not make it explicit:

> *'There are also residents of whom I think, well, you know, "if I'd do it [myself], it might just go faster" and then, yes, in the weekends, you just want things [the work] to be done quickly. An additional advantage is that a resident can also learn something from it.' (P7).*

In OS, using role modeling in socialization is called the serial tactic. The counterpart (disjunctive tactic) is described as lacking a role model. In the interviews, however, the PDs did not refer to situations where a role model was absent. If PDs acted as role models themselves, they differed in the degree to which they made it explicit for residents.

Acting upon expectations of newcomer residents' adjustment to their new role

This strategy shows how PDs varied in their expectations regarding newcomer residents' adjustment. Some PDs accepted newcomer residents as who they were and gave them positive social support, which eased the transition. As a PD stated:

'We have an eye for the vulnerability of young doctors. When it's really busy, we also make sure that they get compliments. We also try to stimulate them in a positive way, so they don't have the impression of being [used as] a workhorse.' (P14).

These PDs adjusted their strategy to individual newcomer resident' needs.

Other PDs expected residents to adjust to the (implicit) workplace norms and behaviours. A PD stated:

'That's an important thing in [resident] training, (…) is of course that you [the resident] are not responsible, right? So you have to learn [the hierarchy and] your place as a resident. And [as a supervisor] you have to do things like if the resident thinks in one way and I want to do it in another way, then whatever it takes to do it my way must be done. And if that doesn't happen, the resident gets in.' (P8).

In short, PDs differed in their expectations of newcomer residents' adjustment. Some PDs tailored their strategy to newcomer residents' needs, whereas others expected newcomer residents to adjust to the (implicit) norms of the workplace. In OS, this strategy is called the investiture and divestiture tactic.

Overarching insights across strategies

Further inspection of the strategies we identified provided two overarching insights into the way PDs support newcomer residents in their socialization process. The first one refers to the extent to which the socialization process is deliberately planned beforehand (see Table 4). PDs can consider socialization as an explicit learning objective and arrange tasks and responsibilities accordingly. This makes socialization an intended outcome of the program. Alternatively, socialization can happen implicitly as a result of social interactions in the workplace, which is unintentional and may yield various outcomes and side-effects.

The second overarching insight is that the extent to which PDs accommodate newcomer residents' socialization can vary substantially (see Table 5). PDs tailor their strategies to individual resident's needs by adjusting the residents' tasks and responsibilities, thereby creating a certain level of bespoke socialization, particularly around poor performance. In contrast to such individual level strategies, PDs can also employ workplace-centered strategies and expect newcomer residents to adjust to the workplace without much customization, which seems to stem from the implicit expectation that socialization comes naturally.

Table 4. Overarching synthesis across all six socialization strategies: explicit (intentional) learning objectives & implicit (unintentional) effects

Strategy	Socialization as an explicit (intentional) learning objective	Socialization as an implicit (unintentional) effect of social interaction at the workplace
Facilitating newcomers in learning their new role	Making socialization *explicit* in the introduction program	Socialization is an *unintentional* effect of the introduction program
Letting newcomers get acquainted with many supervisors	PDs *explicitly* let newcomers get acquainted with many supervisors	Getting acquainted to other health care professionals is not arranged and therefore socialization occurs *unintentionally*
Making use of role modeling	Making *explicit* to residents that the PD is a role model	Assuming that PDs are a role model for residents without making it explicit and therefore socialization is an *unintentional* effect

Table 5. Overarching synthesis across all six socialization strategies: individual-centered & workplace-centered approaches to socialization

Strategy	PDs adapt their strategy to individual residents' needs	PDs expect residents to adjust to the norms of the workplace
Approaching newcomers as a group or as individuals	PDs use an individual strategy for residents with poor performance	PDs expect residents to adjust to their peer group
Responding to the development of newcomers during their socialization process	PDs tailor their strategy to individual residents and have a variable time frame for changing newcomer residents' tasks and responsibilities	PDs treat every resident the same and change newcomer residents' tasks and responsibilities after a fixed time frame
Acting upon expectations of newcomer residents' adjustment to their new role	PDs accept residents' personal characteristics and adapt their strategy to individual residents' needs	PDs expect residents to adapt to the (implicit) norms of the workplace

Discussion

This study aimed to deepen our understanding of what strategies PDs use to facilitate newcomer residents' transition and guide them through their socialization process. We identified six different strategies, which seemed to correspond with the organizational tactics described by van Maanen and Schein (7). The overarching insights we uncovered by comparison across strategies showed that PDs strategies varied from mentioning socialization as an explicit (intentional) learning objective to considering socialization as an implicit (unintentional) effect of social interactions at the workplace. Furthermore, PDs differed in using an individual-centered or a more workplace-centered approach to socialization.

Our finding that the PDs' socialization strategies were often unintentional, resonates with the literature (138,152). Hafferty and Castellani stated that socialization often 'resides at an unconscious or unexamined level to the immediate social actors' (138). Therefore it is not surprising that most PDs in our study did not mention socialization as an explicit and intentional learning objective. The observation that socialization occurred despite the absence of socialization as a learning outcome can be explained by the fact that socialization is regarded as one of the driving forces behind what sociologists call 'social reproduction' (153,154). In other words, socialization is a necessity to sustain the profession, the specialty, the department and the hospital. The observation that socialization occurs unintentionally may be further explained by the fact that existing social structures in the researched context (6,106,114,155–157), such as connection with peers by sharing an office or collaboration with nurses on ward rounds, already propel the socialization of newcomers.

Consequently, it seems that, from a sociological perspective, the use of unintentional strategies can be explained. However, unintentionally using a socialization strategy contrasts with the principles of adult learning. It is essential for adult learners, including residents, to have clear learning goals and objectives (158). In addition, we did find examples of PDs who already used an intentional and explicit strategy to facilitate the socialization of newcomer residents in transition, but when should PDs and faculty apply intentional strategies? The PDs in our study felt that some residents might struggle with establishing effective working relations with other health care professionals such as supervisors, nurses and peers. In such situations, we recommend to create an intentional strategy for helping residents build relationships to optimize their socialization process.

Our data showed that the PDs' strategies to foster socialization in residents were closely linked to residents' daily supervision at work, i.e. clinical supervision in delivering patient care. Therefore, the theoretical perspective of OS offered us a useful conceptual tool to inform our subsequent analysis and a different lens to deepen our understanding and help us make sense of this complex social reality (43). To smoothen newcomer residents' transition, it is important to reduce the stress they experience when they have to adapt to their new role within a new context facing challenges like establishing social interaction, mastering new tasks and responsibilities and meeting expectations (1,136). The concept of OS differs from the way socialization is often conceptualized in Health Professions Education (HPE) literature. Hafferty (100) distinguished socialization from training by arguing that 'while any occupational training involves learning new knowledge and skills, it is 'the melding of knowledge and skills with an altered sense of self that differentiates "training" from "socialization"'. In other words, Hafferty clearly separated socialization from clinical tasks and responsibilities, whereas OS did not distinguish between these processes. Other scholars such as Biesta and van Braak (137) conceptualized socialization

as one of the purposes of (medical) education. They differentiated socialization (becoming a member of the professional group), qualification (providing students with knowledge, skills and understanding) and subjectification (becoming a thoughtful, independent, responsible professional), but acknowledged that these aspects overlap. Consequently, the perspective of Biesta and van Braak shares with that of OS that socialization and clinical tasks and responsibilities –what Biesta and van Braak called qualification: the acquisition of knowledge, skills and understanding– overlap and are often intertwined. The difference between these two perspectives lies in their focus. While Biesta and van Braak focused on different educational purposes, OS was developed to focus on socialization in the workplace. In summary, a unifying theory of socialization is lacking; definitions of socialization vary over time and across academic disciplines (45,100). In the context of medical education, our deductive analysis through the lens of OS adds to this conversation as it reinforces the notion that socialization and clinical tasks and responsibilities are closely related and often overlap, particularly in newcomer residents.

Although the formal curricula of the researched PGME contexts are built around Competency Based Medical Education (CBME) (159), we found examples in our data contrasting these tenets. One of the characteristics of CBME is using a learner-centeredness approach. Our data provided examples of PDs who adopted a learner-centered socialization strategy by adjusting their strategy to the individual development of the residents, focusing on personal characteristics of the resident and/or supporting poor-performing residents. However, our data also provided examples of PDs who adopted a workplace-centered socialization strategy. These PDs assumed that residents would adapt to their peer group and the implicit norms of the workplace. But, how can we explain these contrasts?

That some PDs preferred a workplace-centered approach to socialization can be explained as follows. Residents do not deliver patient care on their own, or in isolation. Delivering patient care is team work (74). Therefore, it might be difficult for PDs to discern residents' individual contributions from the team effort (74). Moreover, it is not only important that every team member knows how to apply professional standards, it is also important that they are able to function in a team. Socialization is necessary for team work to be effective. Therefore, 'workplace-centered strategies'–such as expecting residents to adjust to their peer group and to adapt to the (implicit) norms of the workplace (see Table 5)– might even be more important for individual residents, because they need 'to be able to work in a complex environment in which powerful, often informal, unmentioned, and largely hidden social forces take part' (74).

Strengths and limitations

Our decision to apply the lens of the OS tactics to perform a theory-informing inductive data analysis after the data collection and thematic analysis was completed (42), may have prevented us from identifying any examples of the disjunctive tactic. Although our decision to do so can be seen as a limitation since we did not specifically ask for participants' perceptions of each tactic, all other organizational tactics turned out to be present in the data, suggesting that the OS framework is applicable to our situation. This seems to be supported by van Maanen and Schein (44), who stated that organizational tactics 'theoretically, at least, can be used in virtually any setting'. If we had chosen a fully theory-informed inductive study design (42) in which the theory informs *every step* of the research process, it would have yielded potentially different outcomes. However, instead of developing or refining a theory, we aimed to broaden our understanding of a situation in clinical practice, in which theory helps to identify 'processes that occur beneath the surface and so to develop knowledge of underlying (generating) principles' (43).

Our study focused specifically on organizational tactics, which were also described in the model of Bauer and Erdogan (54,141) and adapted to fit the transition of undergraduate medical students into clinical clerkship and graduate nurse transition (51,57). A strength of our study may be that we conducted a deep exploration of organizational tactics PDs used to facilitate the socialization process of newcomer residents. Based on our results, we propose to slightly modify Bauer and Erdogan's model by adding to the organizational tactics that the process of socialization can be approached in different ways: as an explicit and intentional learning objective, or as an implicit and unintentional learning objective. Moreover, we could add the nuance that organizational tactics can be individual-centered as well as workplace-centered.

PDs were purposively sampled from different hospitals and different specialties. On the one hand, this can be seen as a strength because we explored the socialization process in different contexts, which may contribute to the transferability (43,87,146) of our findings. On the other hand, our sample size is limited and therefore the transferability (146) to other settings is limited. We believe, however, that the results of our study lay a foundation for future research in other settings, such as non-hospital settings and settings in different regions and countries.

We consider the diversity in our research team a strength of our study. Three team members (two residents and one PD) worked within and two outside the researched context. Their different perspectives, gained from lived experiences, helped us make sense of the results (37). We tried to optimize the quality of our design, analyses and interpretations by adopting a continuous iterative approach, in which we critically reflected on the research

process as it developed. The numerous discussions, reflections and conversations may have resulted in a richer overall outcome.

Future research

We explored how PDs navigated newcomer residents through their socialization process. A next step would be to investigate how residents experience these organizational strategies. From OS literature we know that new situations may cause uncertainty (54) and that newcomer residents may be motivated to reduce these negative effects by learning the 'functional and social requirements of their newly assumed role as quickly as possible' (44). Future research should investigate the effectiveness of the different strategies, specifically the extent to which each strategy affects newcomer residents' socialization.

Besides, a smooth transition of newcomers into an organization contributes to the continuation of the organization's mission, values, and performance (44,45). Therefore, additional insight into PDs' socialization strategies would be useful to ease newcomer residents' transition. Future research involving a large group of PDs and faculty is needed to further unravel the relation between OS tactics, newcomer adjustment, and outcomes (54), and to deepen our understanding of effective organizational support to ease the transition of newcomer residents.

Practical implications

The results of our study uncovered a broad range of strategies PGME institutions PDs and faculty can use to facilitate the socialization process of newcomer residents. On an institutional level, these strategies can be used to improve PGME standards and inform faculty development courses (56). On a program level, PDs and faculty can gain valuable insights to facilitate the socialization process of newcomer residents and the possibility of switching between strategies, depending on the situation. They could, for instance, make socialization an intended learning outcome of PGME and/or the introduction program, because clear learning objectives are essential for adult learners like residents (158). They could also adapt the introduction program by providing ample opportunity for newcomer residents to communicate with their supervisors and build relationships, especially in the beginning of residency training. Residents who struggle with establishing effective working relations with other health care professionals may need additional help. On a supervisor level, the results of our study may create awareness among supervisors of what they could do to ease the socialization process of newcomers. Although research shows that socialization is often an unintentional effect of implicit and informal learning, we argue that PDs should not rely on the implicit expectation that socialization between newcomer residents and supervisors comes naturally in daily practice (56,160). As context shapes residents' learning, we recommend to foster dialogue between newcomer residents, their

supervisors, PDs and/or faculty, to discuss the norms and culture of the training program and the PGME institution (160).

Conclusion

This study empirically illustrates that socialization will occur regardless of which strategy is used. We identified six strategies PDs used in medical practice. Further inspection of these strategies showed that PDs' strategies may vary from considering socialization as an explicit learning objective to perceiving socialization as an unintentional effect of social interaction in the workplace. Another overarching insight we uncovered was that PDs' strategies may vary from individual-centered to workplace-centered strategies. Although the workplace-centered strategy contrasts with the learner-centered approach of CBME, it seems essential for the socialization process. The findings of our study may increase the understanding among PGME institutions, PDs and faculty of what can and should be done to positively affect the socialization process of newcomer residents and help them 'learn the ropes'. Further research is needed to gain a deeper understanding of residents' perceptions of PD's efforts to facilitate their socialization process during transitions.


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Chapter 5

Patterns of Medical Residents' Preferences for Organizational Socialization Strategies to Facilitate their Transitions: A Q-Study

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Abstract

Introduction

To facilitate various transitions of medical residents, healthcare team members and departments may employ various organizational socialization strategies, including formal and informal onboarding methods. However, residents' preferences for these organizational socialization strategies to ease their transition can vary. This study identifies patterns (viewpoints) in these preferences.

Methods

Using Q-methodology, we asked a purposeful sample of early-career residents to rank a set of statements into a quasi-normal distributed grid. Statements were based on previous qualitative interviews and organizational socialization theory. Participants responded to the question, 'What are your preferences regarding strategies other health care professionals, departments, or hospitals should use to optimize your next transition?' Participants then explained their sorting choices in a post-sort questionnaire. We identified different viewpoints based on by-person (inverted) factor analysis and Varimax rotation. We interpreted the viewpoints using distinguishing and consensus statements, enriched by residents' comments.

Results

Fifty-one residents ranked 42 statements, among whom 36 residents displayed four distinct viewpoints: Dependent residents (n=10) favored a task-oriented approach, clear guidance, and formal colleague relationships; Social Capitalizing residents (n=9) preferred structure in the onboarding period and informal workplace social interactions; Autonomous residents (n=12) prioritized a loosely structured onboarding period, independence, responsibility, and informal social interactions; and Development-oriented residents (n=5) desired a balanced onboarding period that allowed independence, exploration, and development.

Discussion

This identification of four viewpoints highlights the inadequacy of one-size-fits-all approaches to resident transition. Healthcare professionals and departments should tailor their socialization strategies to residents' preferences for support, structure, and formal/informal social interaction

Introduction

Medical residents undergo many challenging transitions during their residency, including shifting from student to resident, changing rotations, and moving between hospitals (4,9,16,17). With each transition, residents must adapt to new tasks and roles (6) while integrating into an established healthcare team, each with its own norms, values, and rules of interaction (6,11,77). These frequent transitions can be stressful and have potentially negative consequences for both residents and patients (9,16). Residents may struggle to acquire the knowledge, skills, and attitudes, which constitute the foundational elements of competence, essential to take full ownership of patient care (9,16).

This study explores residents' transitions by employing organizational socialization, a concept rooted in organizational psychology that refers to the period during which newcomers acquire the knowledge, skills, and behaviors needed to assume their roles within an organization (44). Organizational socialization theory posits that onboarding programs are crucial to newcomers' socialization processes (45,161). For health professions education, onboarding programs encompass both formal (e.g., orientation programs) and informal (e.g., interactions with other healthcare professionals) (56,77,122).

The onboarding programs for healthcare team members transitioning into new roles vary substantially. Some programs are comprehensive, including both formal and informal orientation elements (56). Formal orientation programs are typically implemented by healthcare departments or hospitals and involve courses that address workplace-specific knowledge and skills; guidance from role models, mentors, or fellows; and insights into logistical aspects (6,51,55,56,77). In contrast, informal programs involve social interactions between residents and healthcare team members (i.e., supervisors, nurses, and fellow residents) and focus on providing support and respect (6,55), fostering an open atmosphere, and tailoring the orientation to individual needs (e.g., informal guidance on work agreements, rules, protocols, how to perform duties) (40,56,122). Despite considerable research into both formal and informal orientation programs, residents still perceive them as inadequate or absent for various reasons (3,6,9,40,51,55), including high resident-to-supervisor ratios, scheduling challenges, shift work, and service-related work environment pressures (56). Hospitals vary widely in their onboarding approaches, as do residents' perceptions of them (9,122). Some residents prefer a formal, hospital-wide approach; others seek informal orientation approaches that allow them to experiment (9,122). Given variation in residents' preferences, can we identify types of residents group them according to their socialization preferences? To our knowledge, no research has yet identified the most beneficial strategies for specific resident types. Therefore, we aim to identify patterns in residents' preferences for strategies to facilitate their transition. Understanding these patterns can help improve tailoring supervision and guidance to

the unique needs of individual residents during their transition, which may improve their well-being and health care performance.

Methods

Context and setting

We conducted this study in eight hospitals within the Northeast Education Region of Postgraduate Training (OOR NO) in the Netherlands. Participants, recruited in March 2023, were residents who had completed a six-year undergraduate medical education program. They were working as either residents not in training or as first- or second-year specialty training residents (68). In the Netherlands, residents not in training customarily work for approximately 3.5 years before commencing their postgraduate specialty training, which typically lasts three to six years (67,70). This training takes place in both academic and general non-academic teaching hospitals. Residents not in training often spend a year working in a specific department, after which they may choose to apply for another year as a resident not in training or for a position in a specialty training program. In the Netherlands, postgraduate residents are selected by a selection committee comprising various Program Directors from the specific specialty training to which the resident applied. This process is high-stakes, based on performance-based selection criteria, and implicit social processes such as intuition, fitting in with the group, and the personal beliefs and values of the selection committee (120). Specialty training residents rotate, depending on the program, every three to 12 months to other (sub)departments or hospitals.

Design

We used Q-methodology to identify patterns in residents' preferences for strategies employed by healthcare team members, departments, and hospitals to optimize their transition. Researchers have often applied Q-methodology in health professions education research to identify patterns in intention of certain behaviors or other subjective matters (162–167). This mixed-methods research technique aims to capture individual respondents' subjective viewpoints systematically, using preference similarities, to identify groups with similar viewpoints (168,169). Q-methodology offers nuanced insights through the combination of qualitative and quantitative data. It identifies shared viewpoints, enhancing our understanding of subjective experiences and preferences, ultimately leading to more comprehensive and context-specific research findings [26,27]. We adhered to the steps typically followed in the development and execution of Q-methodology studies: (1) develop the statement set; (2) recruit a purposeful sample of participants; (3) have participants sort statements into a grid, which takes on the form of a quasi-normal distribution ranging from 'not my preference at all' to 'totally my preference' (Appendix 1: Fig. 2); (4) ask participants to explain their sorting; (5) analyze

the data using a reduction technique called 'by-person (inverted) factor analysis', which clusters participants instead of items, resulting in a typology of participants who share similar preferences, which capture their viewpoints (169); and (6) identify and interpret groups with distinct viewpoints.

Developing the statement set

We derived the statement set from prior qualitative interview studies into residents' perceptions of organizational strategies employed by healthcare team members (e.g., supervisors, nurses, fellow residents) to optimize residents' transition, as well as program directors' perspectives on their roles (77,122). The interview data proved valuable and provided insights into residents' experiences with organizational strategies and program directors' strategies aimed at optimizing their transition. We identified six organizational socialization tactics (77,122).

To start, one team member (GG) divided the collected statements into six tactics (collective-individual, formal-informal, sequential-random, fixed-variable, serial-disjunctive, investiture-divestiture) to ensure the statement set covered all relevant aspects (44,45,77,78,122,161), then rephrased all statements to match the research question and instructions to participants so that every phrase started with *'I like …'*. Three team members (GG, GW, JS) independently assessed each statement for uniformity, clarity, understandability, and suitability. We also determined whether the statements were equally distributed on the level of interaction between residents and healthcare professionals, as well as the systemic level (department/hospital), because organizational tactics influence residents' introduction at both levels (122). We clustered statements of comparable themes into the six tactics and combined, rephrased, or discarded overlapping statements. Each research team member reviewed the preliminary statement set to assess its clarity and understandability. Subsequently, GG piloted the preliminary statement set in individual (online) interviews with four residents, using techniques such as thinking aloud and verbal probing (170,171) by asking them to verbalize every thought while reading the statements. GG also used probe questions to assess how residents formulated statements, allowed participants to (dis)agree with the statements, and checked whether they accurately represented the topic (172). We tested the procedure on three medical students and one resident to ensure clarity and proper execution. The pilot residents and medical students followed the same procedure as the participants, as detailed in the 'sorting participant statements' subsection below.

Recruiting a purposeful sample

Typically, Q-methodology studies involve 40–60 participants (169). To achieve maximum variability in the participant sample, we purposefully sampled participants (169): We specifically targeted participants from three groups (residents not in training and first- and

second-year specialty training residents) to address the transition experiences of early-career doctors. With a deliberate approach, we also systematically included residents from each of the three hospital-based specialties (medical, supportive, and surgical) (173) and from academic and general non-teaching hospitals. We concluded sampling once the inclusion criteria were met.

Sorting participant statements

We used the online tool www.qsortouch.com, as used successfully in other Q-methodology research (164,165). Participants first gave informed consent, then received the prompting question, 'What are your preferences regarding strategies other healthcare professionals, departments, or hospitals should use to optimize your next transition to a new workplace?' Subsequently, they randomly read the statements and categorized them into one of three piles: 'not my preference at all', 'neutral', and 'totally my preference'. This process allowed them to become familiar with the statements. After sorting all the statements, they refined their three piles by ranking the statements into a Q-sort grid (Appendix 1: Fig. 1) with nine columns ranging from 'not my preference at all' (−4) to 'totally my preference' (+4) (169). The rows were quasi-normally distributed, ranging from one statement in the extremes (−4, +4) to eight statements in the neutral (0). The sorting procedure ended when all statements had been placed in the fixed distribution.

Explaining participants' ranking

Next, participants elucidated the reasoning behind their sorting decisions and provided sociodemographic information through a post-sort questionnaire (Appendix 2).

By-person (inverted) factor analysis

We employed a by-person (inverted) factor analysis and identified distinct factors using dedicated software (PQMethod, version 2.35) (Http://Schmolck.Org/Qmethod/). For the sake of clarity, we replace 'factor' with 'viewpoint'. In Q-methodology, participants serve as variables, unlike in most quantitative research methods. Consequently, the correlation matrix reflects connections across Q-sort patterns, representing participants' viewpoints. After considering various extraction techniques, we chose the centroid Brown option followed by a Varimax rotation (Appendix 2) (169). With principal component analysis, we also checked for comparable results, which it supported. Within the centroid Brown–Varimax option, we considered three-, four-, and five-factor solutions. For each solution, we examined both the variance and the number of Q-sorts that loaded significantly on the extracted viewpoints. A cumulative variance of 35%–40% or higher indicated a robust solution (169).

Identifying and interpreting distinct viewpoint groups

We employed three decision-making criteria to determine the number of viewpoints. First, we used the Kaiser-Guttman rule to retain viewpoints with an eigenvalue of at least 1, though this rule often overestimates the number of viewpoints (169,172). Second, we accepted viewpoints that at least three participants loaded on significantly ($p < .01$), which corresponded to a loading greater than .40 (i.e., $2.58 \times [1/\sqrt{\text{number of items in the Q set}}]$) (169,175). Third, we examined the standard error, which corresponded to .15, calculated using $1/\sqrt{\text{number of items in the Q set}}$. Using Humphrey's rule (i.e., to count as a viewpoint, the cross-product of its two highest loadings should exceed the standard error) (169), we found three viable solutions comprising three to five viewpoints.

To interpret the results, we examined factor arrays of the three-, four-, and five-viewpoint solutions. A factor array represents weighted averages of the Q-sorts loading on a specific viewpoint, by describing an 'idealized Q-sort'. Six researchers independently interpreted the solutions, examining the relative location of the statements between the viewpoints (highest and lowest ranks of statements compared with other viewpoints), as well as 'distinguishing' and 'consensus' statements (169). A statement is distinguishing if its ranking differs significantly ($p < .05$) from its rankings in other viewpoints (172) and consensus if the ranking does not differ between any pair of viewpoints (i.e., all the study participants included in the viewpoints ranked or valued the statement in [almost] the same positive, negative, or neutral way; (169,172)). To develop a genuinely holistic interpretation of each viewpoint, we developed a crib sheet for each viewpoint. A crib sheet is used to systematically identify the highest and lowest-ranked statements, in combination with statements ranked higher or lower in the specific viewpoint than in other viewpoints (169). We used the post-sort questionnaire to understand the perspectives expressed by each viewpoint, in that answers to the open questions provided information about why residents chose statements at the extremes (–4, +4) (Appendix 2).

Results

The initial statement set consisted of 162 statements, which we reduced to 42 (Table 1). We purposively selected 52 participants (Table 2) and excluded 1 who did not complete the post-sort questionnaire. Our centroid Brown–Varimax analyses identified four viewpoints, as explained in Appendix 3. In this solution, 36 of the 51 participants loaded on one of the viewpoints (71%), which corresponds with a suitable 51% variance (27). The remaining 15 participants were either non-significant (n = 5) (i.e., not loading significantly on any of the viewpoints) or confounded (n = 10) (i.e., loading significantly on more than one viewpoint). We further identified three consensus statements (italicized in Table 1), representing relative shared agreement (Appendix 4).

Table 1. Factor (viewpoint) Array, complete list of 42 statements and idealized sorts for the four viewpoints representing residents' preferences for onboarding strategies

	Statement viewpoint	1	2	3	4
1	I like it when we as residents actively form a cohesive group ourselves, without support from the program director or department.	**−1***	1	1	**2**
2	I like it when supervisors and nurses treat me like one of (many) residents.	−2	**−1***	−2	−2
3	I like it when the department takes the initiatives to help us as residents become a cohesive group.	−1	0	0	−1
4	I like it when my colleagues^ actively invite me to be part of the care team, for example, by going out to lunch together.	**−1***	**3***	1	1
5	I like it when the program director and residents together monitor compliance with the collective bargaining agreement (work/life balance).	0	0	**−1***	**1**
6	I like it when colleagues^ support me during tough moments, for example, a difficult collaboration.	**2**	1	0	0
7	I like to interact informally with colleagues^.	**−2***	2	2	1
8	I like it when my fellow residents tell me in the first few days what the unwritten rules are in the department, such as how to approach supervisors.	**−1**	**3***	1*	−1
9	I like it when my fellow residents introduce me, for example, by helping me with the department rules and daily schedule and giving suggestions on how to do the work.	1	2	2	**0**
10	I like that before I start working at the hospital I have already been sent an introduction document and additional information about the hospital.	−1	0	**1**	**−2**
11	I like it when the first few months are structured with, for example, a clear onboarding, getting to know the hospital, specific courses, and shadowing days at different places.	0	**2***	−1	−1
12	I like to take courses with fellow residents.	**−2***	**2***	0	−1
13	I like it when there is a defined onboarding period of several weeks.	**0**	−1	**−2***	−1
14	I like that I am not allowed to perform the duties of a resident until I feel familiar with the departmental procedures and working methods.	−2*	−1	−2*	**0**
15	I like it when I can explore my tasks quietly and alone during the onboarding period.	−1*	−3	−3	**0***
16	I like it when there is no clear onboarding period, so that I can figure things out independently.	−3	**−4**	**−1***	−3
17	*I like being given the space to make mistakes.*	*2*	***3***	*2*	*2*
18	I like it when the onboarding period concludes with a conversation with the program director or a supervisor about my functioning (what is going well, what could be improved).	0	**1**	0	0
19	I like it when the number of patients I am responsible for gradually increases.	1	−1*	**−2***	1
20	I like being thrown in at the deep end.	−2*	−3	**2***	**−4**
21	I like it when I can indicate how much work I want and have it tailored to my (performance) level.	0	0	−1	−1
22	I like to learn the work by being given responsibilities and being guided in this by my supervisor.	2	2	**4***	2

Table 1. Continued

23	I like guidance from the supervisor to introduce myself to other colleagues.^	**0***	−2*	**−4**	−2
24	I like it when colleagues^ adapt their behavior to me as a newcomer by helping me and adjusting their expectations to my competencies.	0	0	**−3***	−2
25	I like to introduce myself to other colleagues^: I do not need help from the supervisor for this.	−2	−2	**1***	0*
26	I like it when it is clear in advance how long it will take before I get more tasks and responsibilities.	−1	−1	−1	**1***
27	I like it when the decision of when I can do shifts or when I will get more duties and responsibilities depends on my competencies.	**3***	1	0	0
28	I like it when colleagues^ show me how to perform, or how to solve a problem.	**2**	1	0	**−2**
29	I like to get space to observe other residents to better understand my role.	**1***	−2	−2	−2
30	I like it when colleagues^ provide space to spar about planning the day.	1	−1	1	−1
31	I like having the space to discover for myself how to do the work (optimally).	1	**−2***	2	2
32	I like to figure out for myself how each supervisor wants to be approached.	−3	−3	−1*	**0***
33	I like it when I am required to conform to the norms and values of the department in order to be accepted.	−3	−2	−3	−3
34	I like to adapt to what the supervisor wants.	**−4**	−2	−2	−3
35	I like it when supervisors come immediately into the hospital during the shift when I need them.	**4***	2	**1**	3
36	*I like it when I do not know something, I can approach the nurse easily.*	*2*	***1***	*2*	*3*
37	I like it when people who like me but also people who don't like me help me become a better doctor by providing feedback.	2	**0***	**3**	2
38	I like it when a hospital organizes 'peer support', that is, help from a colleague in an intense situation.	1	0	**−1**	1
39	I like it when supervisors are personally interested in me.	3	1	3	1
40	I like it when the department allows me to share my experiences from previous hospitals or departments and that people are willing to learn from them.	1	**−1***	0	**2***
41	I like having the space to adapt my training plan and work to my needs.	0	0	0	**3***
42	*I like it when there is an open atmosphere: that you can easily ask the supervisor, even if it is simple question.*	*3*	*4*	*3*	*4*

Notes: This array consists of the complete list of 42 statements and idealized sorts of the four viewpoints representing residents' preferences regarding healthcare team members' and departments' strategies to optimize their transition. Within each viewpoint, we highlight the highest- and lowest-ranked statements in ***boldface***, the consensus statements in italics, and distinguishing statements with an asterisk*. A statement is distinguishing if its ranking differs significantly ($p < .05$) from its rankings in other viewpoints and consensus if the ranking does not differ between any pair of viewpoints. ^The word 'colleague' refers to supervisors, nurses, and fellow residents.

Next, we provide an overview of each viewpoint. The statements are indicated in brackets, along with their placement in the idealized sort, corresponding to the columns of the grid. We interpreted the viewpoints according to residents' preferences and qualitative explanations, as follows: (1) Dependent resident, (2) Social Capitalizing resident, (3) Autonomous resident, or (4) Development-oriented resident. See Table 2 for participant demographics. Figure 1 illustrates the relative positioning of the four viewpoints on a two-dimensional scale.

Table 2. Participant Characteristics

	Sample	Viewpoint 1: Dependent resident	Viewpoint 2: Social Capitalizing resident	Viewpoint 3: Autonomous resident	Viewpoint 4: Development-oriented resident
Respondents (n=)	51	10	9	12	5
Variance (%)		13	12	15	11
Gender					
Female	32 (63%)	8 (80%)	5 (56%)	5 (42%)	4 (80%)
Male	19 (37%)	2 (20%)	4 (44%)	7 (58%)	1 (20%
Specialty					
Medical	28	6 (60%)	4 (44%)	6 (50%)	4 (80%)
Surgical	17	4 (40%)	2 (22%)	5 (42%)	1 (20%)
Supportive	6	0	3 (33%)	1 (8%)	0
Age mean (range) (years)					
Average	28.8	29.7	29.1	28.7	29.2
Range	25–37	25–37	26–33	25–32	26–32
Rank					
Resident not in training	30 (59%)	6 (60%)	4 (44%)	7 (58%)	2 (40%)
Specialty training resident	21 (41%)	4 (40%)	5 (56%)	5 (42%)	3 (60%)
Hospital type					
General, non-academic	42	9	5	10	5
Academic	9	1	4	2	0

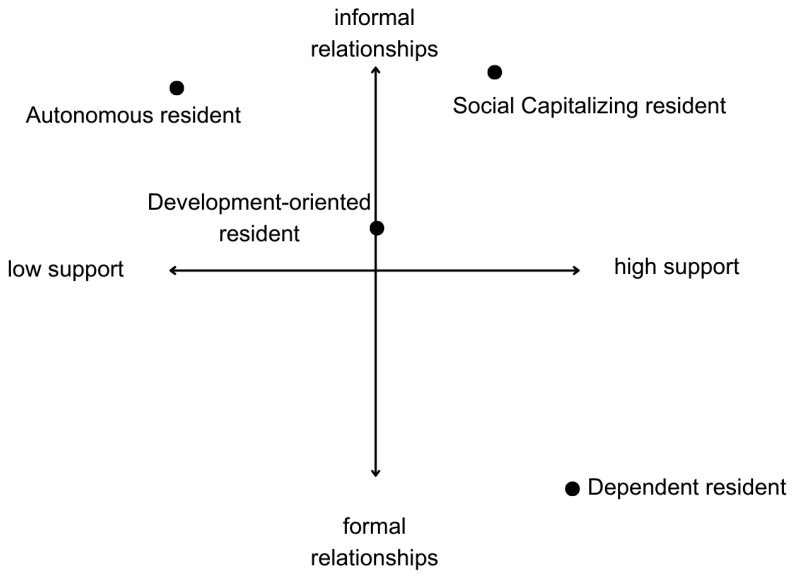

Fig. 1 Relative Overview of Four Viewpoints on Two-Dimensional Scale
Notes:
The x-axis represents preference for the degree of support, at the level of both supervisors and the department/hospital with a structured onboarding program. A lower position indicates a preference for minimal guidance and a loosely structured onboarding period, whereas a higher position represents a preference for substantial guidance and a highly structured onboarding period. The y-axis reflects preferences for informal or formal relationships.

Viewpoint 1: Dependent resident

Viewpoint 1 accounts for 13% of the data variance, with 10 participants significantly loading on this viewpoint. This viewpoint represents residents who preferred a *task-oriented approach*, *clear guidance*, and *formal relationships* with colleagues. Regarding the task-oriented approach, these residents preferred their responsibilities to be based on their competencies (S27: +3). In addition, they favored receiving clear guidance from colleagues to effectively carry out their roles, resolve issues, and familiarize themselves with departmental rules and daily routines (S9: +1, S28: +2, S29: +1). As one participant mentioned, *'often, this will teach you useful tricks and you will be up-to-date the quickest'* (R42). They noted that supervisors should provide more consistent guidance, and therefore, they preferred not adapting to supervisors' idiosyncrasies (S34: −4). One resident explained: '*every supervisor has different standards, and I find it illogical that residents must adapt since there should also be more uniformity among supervisors so that adapting does not just come from the residents' (R24)*. They were neutral on whether supervisors should guide them in getting acquainted with other colleagues (S23: 0), but they strongly preferred supervisors to be available immediately during on-call situations (S35: +4). One resident expressed

that if supervisors are available immediately, they show that residents '*are not alone*' (P15). Furthermore, they primarily valued formal relationships and had relatively limited interest in informal social aspects of their work, like interacting with colleagues (S7: −2), participating in courses together with fellows (S12: −2), or actively seeking invitations to be part of the healthcare team (S1: −1, S4: −1).

Viewpoint 2: Social Capitalizing resident

Viewpoint 2 explains 12% of the data variance, with 9 participants loading on it. It represents residents who prioritized a *structured onboarding period* and *social interaction*. A structured onboarding period allowed them to familiarize themselves with the hospital environment, participate in courses, and observe others (S11: +2). Consequently, they did not prefer the absence of an onboarding period (S16: −4) but rather wanted it to conclude with a conversation with the program director or supervisor, allowing for personal feedback on their performance (S18: +1). As one participant emphasized: *I think personal feedback is very important. At such a time, you can discuss the rest of the year. what is going well, what could be improved, where you need to work on, and how you can prepare for on-call situations. What do [people] expect from you. (R28)*

The residents valued becoming part of the team, such as having lunch together (S4: +3) and receiving insights from fellow residents about the unwritten department rules, including how to approach different supervisors (S8: +3). They found it beneficial to attend courses together with colleagues (S12: +2).

Viewpoint 3: Autonomous resident

Viewpoint 3 accounts for 15% of the data variance and 12 participants who load significantly on it. It represents residents who preferred a *loosely structured onboarding period*, *independence*, *responsibility*, and *social interaction*. Compared with other viewpoints, residents with this viewpoint were less concerned about the onboarding period lacking clarity and requiring them to figure things out independently (S16: −1). They preferred to explore their tasks on their own terms; the onboarding period did not need to be rigidly defined (S13: −2). They did not desire a sequential increase in the number of patients either (S19: −2). They valued learning their work by being given responsibilities (S22: +4) and being thrown into the deep end (S20: +2). They were comfortable introducing themselves to colleagues without relying on supervisor assistance (S25: +1, S23: −4). As one participant expressed, '*I can do that on my own, it seems to be a part of professional performance' (R6)*. Furthermore, they saw the benefits of learning from their fellow residents. They acknowledged that their peers could help them understand unwritten rules (S8 +1) and learn how to approach different supervisors (S32: −1). They did not expect their colleagues to adapt their behavior to residents as newcomers (S24: −3); they

simply wanted to be treated like everyone else. As one resident stated: '*I do not want to be treated differently' (R31).*

Viewpoint 4: Development-oriented resident

Viewpoint 4 explains 11% of the data variance, with 5 participants loading significantly on it. It represents residents who sought an *intermediate structure,* allowing for *independence*, *exploration*, and *development*. These residents preferred not to be thrown in at the deep end (S20: −4). Instead, they sought a gradual increase in workload and responsibility, with prior information about department procedures, working methods, and knowledge of when to become accountable for what (S14: 0, S26: +1). They appreciated that the program director and residents shared responsibility for compliance with the collective bargaining agreement (S5: +1). However, they also desired some space for their own input: '*I like to have a structure during my onboarding period, especially in a new hospital with new colleagues. Within this structure, there may be some freedom, but it should be clear where I work each week during the onboarding period.' (R16)*

They did not prefer an introduction document before they started in a new department (S10: −2). Moreover, they wanted a certain level of independence. They did not desire guidance to form a group of residents (S1: +2) or support to perform tasks or solve problems (S28: −2). Furthermore, they appeared neutral about support from residents to understand department rules, daily routines, and suggestions for how to improve (S9: 0). Compared with residents with other viewpoints, these residents were less concerned about exploring their tasks independently during the onboarding period (S15: 0). They prioritized development and valued bringing previous experiences from other hospitals or departments to their current workplace (S40: +2). They also appreciated the opportunity to tailor their personal development and work to their needs (S41: +3).

Discussion

This study's aim was to identify and compare residents' preferences regarding strategies employed by healthcare team members and departments to optimize residents' transition. We identify four distinct viewpoints. Our results both confirm and build on previous studies focusing on various aspects of onboarding programs. Our results confirm previous studies by pinpointing the importance of guidance by other healthcare professionals, onboarding program structure, and social interaction methods (6,40,51,55,56,77,122). The novel perspective our study brings is that residents vary considerably in their preferences for supervisory guidance, onboarding program structure, and social interaction methods. This diversity of preferences suggests that a one-size-fits-all approach may be

inappropriate (176) and underscores the clear need for tailored approaches to enhance transition experiences within healthcare teams and departments.

Our findings enrich the existing literature, by shedding light on factors that contribute to the perceived inadequacy or absence of formal and informal onboardings in clinical practice (3,6,9,40,51,55). The considerable variance in residents' preferences for how other healthcare professionals and departments facilitate their transitions—particularly regarding the levels of structure and formality and emotional bonding in social interactions—may explain why some organizational strategies work for some residents but not others. For example, a structured and formal onboarding period may appeal to and fit the preferences of Social Capitalizing, Dependent, and Development-oriented residents, but not those of Autonomous residents.

This study confirms that residents' preferences for support in the onboarding period vary significantly, which possibly clarifies why many residents experience dissatisfaction with their onboarding period in previous research (6). Organizational socialization research underscores the significance of aligning organizational practices with newcomers' expectations; doing so correlates with heightened job satisfaction and retention (177) whereas unmet expectations frequently result in dissatisfaction and turnover (178). To bolster residents' satisfaction and retention, it is imperative for healthcare professionals to tailor their strategies to individual residents' preferences. Understanding residents' preferences for the level and kind of support (specifically, the amount of structure during the onboarding period and the formality and emotional bonding in social interactions) can be instrumental in achieving this goal. This approach aligns with research outcomes in health professions education that support the idea of customizing strategies to optimize the transition experiences of both students and residents (77,122,164).

Our data display the presence of four types of residents, which implies that program directors, other healthcare professionals and Postgraduate Medical Education (PGME) institutions and, last but not least the residents themselves, may benefit from tailoring the socialization strategies to individual residents' needs. Tailoring strategies to residents' needs also matches the central premises of self-determination theory (SDT), which identifies three basic psychological needs: autonomy (sense of choice), competence (sense of capability), and relatedness (sense of belonging) (179). Supporting these needs fosters intrinsic motivation among residents, leading to positive outcomes like improved performance, adjustment, and positive well-being (180) Although everyone possesses these three basic needs, their distribution varies over time, context, and individual preferences (181–183), and this variation in turn corresponds with fluctuations in preferences for support and social relationships during residents' transition. Thus, we again underscore the importance of intentionally addressing residents' needs for socialization support.

Limitations and further research

The Q-sort methodology offers somewhat limited generalizability to settings beyond the scope of our research. Although prior studies have used the theory of organizational socialization in other transitioning settings (e.g., nurses, preclinical medical students), continued research is needed to confirm whether our results transfer to such settings (51,52,57). In addition, Q-methodology benefits from diverse participant samples. In our study, we did not employ predetermined criteria for selecting residents with varying preferences. Consequently, we did not identify any participants who favored minimal support and formal relationships. This limitation may be attributed to our sampling strategy, where individuals who do not favor low support and formal relationships might have been less inclined to participate in our research. Alternatively, it could indicate a broader trend in resident selection in the Netherlands, where candidates 'who fit in the group' are typically selected (184). Future research should involve a purposive sample of residents from different cultural backgrounds. Currently, it is known that residents with a migration background are less likely to pursue a career as a medical specialist, possibly due to socialization processes and challenges with fitting in (184,185). Furthermore, our study only captured junior residents' preferences at a specific point in time, whereas preferences may change over time (186). Therefore, additional research might investigate differences in the preferences of junior and senior residents (e.g., final specialty training residents), to determine how preferences develop over time and which factors influence such developments (186).

An additional limitation is that the interpretation and choices for the factor solution depended on the research team. We recognize that a different research team might have opted for an alternative factor solution, leading to different outcomes.

Practical implications

To align with SDT principles, healthcare departments must individualize socialization strategies, by reflecting residents' preferences and tailoring strategies to their autonomy needs (e.g., kind and level of support, in terms of structure, formality, and emotional bonding in social interaction). Our typology of needs can be instrumental in such efforts. For example, Dependent residents primarily value support and formal relationships, so healthcare departments could encourage their competence development through constructivist learning approaches, such as a formal introduction program led by peer residents and supervisors about how these residents should do their work. For Social Capitalizing residents, both relatedness and competence are pivotal, as might be promoted through collaborative learning activities. Examples include a peer group introduction program, lunch together in which residents can discuss the unwritten rules in the department, and a structured onboarding period concluded with a conversation with the program director focused on their functioning. Conversely, Autonomous

residents favor informal relationships and intentional support. In this context, autonomy takes precedence and can be nurtured through an informal introduction, opportunities to choose accountable learning activities, and reflective learning stimulating independence (such as no gradual increase in the numbers of patients but being responsible for many patients at once). Finally, Development-oriented residents seek an intermediate structure that allows for exploration, development, and independence, indicating that autonomy and competence development should be emphasized. These residents likely would benefit from not being thrown in at the deep end, but by being given clarity about the procedures and working methods in the department, and clarity about when their responsibilities will increase. To stimulate their development orientation, healthcare professionals should ask them if they have suggestions for improvement in the current work situation, based on their previous experiences in other working places. The residents should also be asked about their individual training goals, by discussing their individual training plan. To support each viewpoint, we recommend pre-transition conversations among program directors, supervisors, and residents, designed to empower residents to express their preferences and thereby enhance their autonomy, competence, and relatedness. Addressing residents' basic psychological needs in these conversations and aligning them with one or more viewpoints not only reduces the risk of needs frustration but also can enhance residents' motivation.

Conclusion

We aimed to identify patterns in residents' preferences for socialization strategies employed by healthcare teams and departments to facilitate residents' transitions. We identified four distinct preference patterns, each with its own unique preferences for structure and for formality and emotional bonding in social relationships during the transition period. These variations underscore the need for tailored approaches to optimize residents' transition experiences in healthcare teams and departments regarding structure, formality, and emotional bonding in social interactions. Such tailored approaches are vital for their socialization and ultimately contribute to residents' satisfaction, retention, and overall success in healthcare settings.

Chapter 6

General discussion

By addressing the multifaceted challenges medical residents face during the transition from student to resident, this research unravels the dynamics of social adaptation. The exploration revolves around two key research questions: (1) how residents navigate the social challenges and opportunities of the transition from student to resident and (2) how interpersonal and organizational factors influence residents' transition. The individual studies provide an empirical foundation and illustrations of residents' strategies to adapt to their new environment, their perceptions of other healthcare professionals' strategies, how they use their social capital and therefore their social networks to deal with barriers in integrating in the healthcare team, program directors' (PDs') strategies, and residents' preferences for how organizational strategies could help them. This final chapter describes a summary of the main findings, shows how the separate chapters interconnect with one another and answer the research questions, describes how the results relate to and extend existing knowledge, addresses the methodological considerations of the studies conducted, shows the personal reflexivity of the first author, discusses practical implications, and proposes directions for continued research.

6.1 Summary of the main findings

Chapter 2 sheds light on residents' individual strategies, their perceptions of organizational strategies, and whether these strategies facilitated or hindered their transitions. The individual strategies range from seeking information, observing, and experimenting, to asking questions and fostering relationships. The purposes of these strategies include acquiring knowledge, task acquisition, acclimatizing to their role, learning how to behave appropriately, and understanding the norms within this specific healthcare team. Residents' experiences of the organizational strategies stemmed from both direct interactions with other healthcare professionals, such as the presence or absence of a role model, and decisions made at the system level, like the presence of a formal or informal orientation program. These organizational strategies both facilitated and hindered residents' own adaptation efforts, and residents differed on whether they experienced a specific strategy as positive or negative.

Chapter 3 examines how residents use their social capital and therefore their social network to deal with barriers to integrating in their healthcare team. Residents articulated physical and psychological barriers in mobilizing their social capital. They reported experiencing physical barriers, often due to a lack of familiarity and certainty about the potential support others could provide, or limited access to the other (i.e., physical unavailability of other healthcare professionals). They reported experiencing psychological barriers when they perceived that gaining access to specific people was too costly. They perceived approaching these others, mainly supervisors and PDs, as difficult, likely due to these team

members' influential roles in both patient care and decision-making related to accessing specialty training positions. To surmount these barriers, residents leaned on the support of trusted members of their social networks to attain their goals.

Chapter 4 examines how PDs facilitate the organizational socialization process of newcomer residents. Their strategies include approaching newcomer residents as a group or as individuals, letting newcomer residents get acquainted with many supervisors, and acting on expectations of newcomer residents' adjustment to their new role. The study substantiates two overarching insights. First, PDs exhibited variability in their approach to tailoring these strategies to meet the specific needs of newcomer residents. Some PDs adopted individualized strategies, especially when addressing poor performance, while others relied on workplace-based strategies that required residents to adapt to the workplace with minimal intervention, viewing adaptation as an implicit expectation. Second, PDs varied in the extent to which they guided residents' socialization processes. Some PDs made the socialization processes explicit, while others assumed that socialization emerged organically through interactions like sharing office space or collaborating with nurses during ward rounds.

Chapter 5 delves deeper into junior residents' preferences for organizational strategies to facilitate their next transition. This chapter uses the results of Chapters 2 and 4 to develop a statement set describing several organizational strategies, at both interpersonal and system levels. Using a by-person factor analysis, this study identifies four distinct viewpoints on residents' preferences: (1) Dependent residents (n=10) favor a task-oriented approach, clear guidance, and formal colleague relationships; (2) social capitalizing residents (n = 9) prefer structure in the onboarding period and informal workplace social interactions; (3) independent residents (n = 12) prioritize a loosely structured onboarding period, independence, responsibility, and informal social interactions; and (4) exploring residents (n = 5) desire a balanced onboarding period that allowed for independence, exploration, and development.

6.2 How do residents navigate the social challenges and opportunities of the transition from student to resident?

Chapter 1 argues that transitions offer both challenges and opportunities for residents (1,3,4,6). By adopting a social perspective to explore the transition from student to resident, this thesis demonstrates how residents adapt to their new role and how they integrate into their new healthcare team as accepted members by learning the team's norms and values—in other words, go through the socialization process (37–40). The thesis highlights, for example, how residents navigate the social dynamics in challenging

situations, which offers insights in residents' socialization process. Particularly important are the findings regarding how residents handle situations with supervisors or PDs whom they perceive as hierarchically distant. These results indicate that residents must be able to cope with hierarchy by using other people in their social networks. In summary, the residents in this data set show how they cultivated social relationships and used individual strategies to create a supportive learning environment.

Chapters 2 and 3 describe how residents navigate the social challenges and opportunities by interacting with other healthcare professionals, such as peers, senior specialty residents, supervisors, nurses, administrative support staff, family and friends (actors in their social networks), and the system, which aligns with previous research (17,38,111,113,125). These interactions consist of the individual strategies of organizational socialization (OS) theory, such as observing, asking questions, experimenting, establishing social relationships, and seeking information. The results confirm and extend previous knowledge by showing that, just like business and preclinical medical students, residents use these individual strategies to reduce uncertainty when entering their new role and while socially integrating into their new healthcare team (49–52). Seeking information primarily serves the purpose of acquiring, refreshing, or deepening their knowledge; other strategies, such as observation and experimentation, leverage both task acquisition and acclimatizing to the resident role within the specific healthcare setting. Both asking questions and fostering social relationships can facilitate learning about how to behave appropriately and understanding the norms within the specific healthcare team. Residents reported using their social networks to gain access to the resources of these actors, such as information, expertise, and support.

Interacting with other healthcare professionals is not always easy: Residents reported experiencing many challenging situations when they wanted to mobilize their social capital. They were able to deal with these challenges by using other actors in their social networks to achieve their goals. Thereby, the results extend previous knowledge, which is mainly focused on barriers to seeking clinical support, without identifying ways to cope with these barriers (38,59,187). By integrating results from the studies presented herein, we show that the SN and SC theories operationalize aspects of OS theory in more detail, by providing in-depth knowledge about how residents establish social relationships, with whom, why, and how they handle barriers. Integrating the OS, SC, and SN theoretical lenses enhances insight into the social aspects of transitions, which adds to conversations about the social perspective in transitions (13).

6.3 How do interpersonal and organizational factors affect residents' transition?

This thesis provides a framework for what OS strategies look like in the setting of residents transitioning into their first job. The findings are in accordance with research on business graduates and nurses: Organizational strategies significantly influence newcomers' transition period (53–55). By combining the perspectives of both residents and PDs, this thesis provides a more comprehensive and nuanced image of OS strategies to facilitate residents' transition. We next compare and contrast some strategies from both PDs' and residents' perspectives and preferences.

This thesis adds to extant literature by providing a comprehensive overview of PDs' strategies, as well as residents' perceptions of and preferences for these strategies. For example, PDs' perception of implementing collective–individual strategy ranges from organizing group activities to supporting individual residents' socialization process by focusing on lower-performing residents. Residents' experiences of these strategies were positive: They felt treated as one of the group, part of the group of residents, and as though they were treated as individuals and received personal attention. In contrast, they were somewhat more nuanced about the collective strategy. Chapter 5 also identifies differences in residents' preferences for organizational strategies. For example, social capitalizing and independent residents preferred the collective strategy of becoming part of the healthcare team by focusing on informal social interaction, whereas dependent residents did not have a preference for such a strategy. In contrast, exploring residents favored the individual strategy, which involves tailoring personal development and work to their individual needs. These findings have practical implications. When interacting with newcomer residents, other healthcare professionals should aim to learn newcomer residents' needs regarding organizational strategies and adapt their strategies accordingly.

Another example is PDs' perception of an investiture–divestiture strategy, which ranges from adapting the strategy to fit newcomer residents' characteristics (investiture) to expecting residents to adjust to the (implicit) norms of the workplace (divestiture). In accordance with the PDs' perceptions, residents experienced the investiture strategy when important people such as supervisors and the PDs were approachable and created an open atmosphere, and the divestiture strategy when they had to adjust to supervisors' preferences. Chapter 5 shows that despite residents' varying viewpoints, they agreed on their preference for the investiture strategy (statement 42: 'I like it when there is an open atmosphere: that you can easily ask the supervisor, even if it is a simple question') and not the divestiture strategy (participants disagreed with statement 34: 'I like to adapt to what the supervisor wants').

By combining these perspectives and preferences, this thesis shows that the perceptions of residents and PDs differed. In addition, whereas residents' preferences for (some) strategies varied, they agreed on other strategies. Therefore, navigating residents' transition is complex for both residents and their guiding healthcare team. To facilitate such transitions, healthcare professionals should adapt their guidance to residents' needs, and residents should actively engage with these opportunities (106,164).

By combining residents' strategies with organizational strategies, we can define the transition from student to resident as a 'socio-personal process of adaptable learning' (4,71). Viewing a transition as such involves recognizing that a newcomer's performance in a specific situation is shaped by the constantly changing interaction between the individual (their background, outlook, and abilities) and the organization (physical, social, and cultural aspects). As a consequence, residents and other healthcare professionals should approach transitions as flexible learning journeys. To ensure residents learn from this journey, it is important that they have access to suitable guidance and support (4).

6.4 Dynamic interplay of residents' and other healthcare professionals' strategies

The interaction between the individual resident and the organization in OS theory, as described herein and in prior literature (45), aligns with a similar, ongoing discussion in socialization literature (188,189). These papers criticize how socialization usually is described, namely, as a process through which an individual actor internalizes or adapts to the norms and values of the professional environment (101,139,190,191), which may extend over years (37,139). Approaching socialization this way implies that it is a unidirectional process that newcomers passively undergo without agency (188). But perhaps socialization should be envisioned as a dynamic, bidirectional process in which both newcomers and established members actively participate (188,189), thus granting newcomers agency. This type of 'agency' refers to the extent to which individuals can exert control in their personal and social lives (192). In leveraging OS theory to understand individual and organizational strategies, this thesis exemplifies the bidirectionality of the socialization process.

Residents' active participation, or agency, in their organizational socialization process also is evident in several chapters. It is revealed through individual strategies (Chapter 2), illustrating how residents actively foster their socialization and integration into the healthcare team, which is in accordance with other studies that use OS theory (49–52). Residents seek to understand the norms, customs, and rules of interaction within the healthcare team by observing their peers, their supervisors, and the nurses. They also

inquire, experiment with the norms and customs, engage in social relationships, and seek additional information. These strategies help them learn how to collaborate and determine how to interact effectively with supervisors, nurses, and patients, by getting feedback from others. Experimenting with the norms, values, and rules of interaction can also give rise to tensions. Residents encounter physical and psychological barriers when mobilizing their social relations to achieve their goals. The current findings align with previous literature, particularly with regard to interactions with PDs and supervisors, in which residents perceive barriers due to their influential roles in both guiding and assessing residents (38,40,59,187). Our research extends previous literature by highlighting residents' agency in coping with these challenges, leveraging their social network of closer connections. When residents challenge the norms, values, and rules of interaction within a department, these aspects have the potential to evolve (189,193). These findings contrast with previous studies showing that established team members (e.g., faculty, nursing staff) determine how newcomer residents should act and adjust to the existing norms, without any negotiation (194,195).

Chapters 4 and 5 demonstrate residents' agency by showing how some PDs tailor their strategies to meet residents' individual needs (Chapter 4) and by suggesting how other healthcare professionals can adapt their strategies to accommodate residents' needs. By identifying the diversity of residents' preferences and advocating adaptation to individual needs, these chapters show the positive outcomes of empowering residents to take control of their own socialization process and PDs and supervisors to adapt their strategies to individual residents' needs.

6.5 Methodological considerations

This thesis demonstrates methodological rigor by employing diverse theories and methodologies that involved multiple stakeholders and a varied research team, resulting in a concept called 'crystallization'—the use of various theoretical frameworks, diverse data collection methods, and collaborative efforts among researchers to gain a nuanced, multifaceted understanding of the social aspects of residents' transitions (82,97). The robustness of this thesis is demonstrated by integrating various theories from related fields, aligning with the evolving trend in health professions education (HPE) that encourages scholars to draw on theories from adjacent domains (196–200). The lack of theoretical foundations in HPE research has been lamented, in critiques that cite the lack of familiarity with social theories, uncertainty about their application, and the predominant influence of a positivistic, biomedical discourse in the field (196,197). However, the practice of applying theories has become more widely accepted, thanks to some pivotal methodological papers (41,82,200) that have enhanced knowledge and competence in

theory application in HPE. This thesis specifically includes micro-level theories like OS, SN, and SC (45,47,48,51,199). Incorporating theories into subjectivist research enhances transferability, making findings relevant to various situations and contexts (147,196).

The strength of this thesis also lies in its diverse methodological approaches, incorporating various qualitative, mixed-methods, and design choices across its studies. The thesis' structure involve collecting diverse data types, including exploratory interviews, semi-structured interviews, and the innovative use of ego-network sociograms. The sociograms enriched interviews by allowing residents to visually represent the complexity of their social networks and the dynamics within these networks. This relatively new research method added depth and progression to HPE research (119,130). In addition, the use of Q methodology in the final chapter allowed the research team to capture subjective viewpoints in depth, enabling a nuanced analysis of residents' preferences (169). In contrast with the interviews, in the Q methodology, the participants rank the statements anonymously, which reduces social desirability bias and can encourage more honest and authentic responses (201). The diversity in designs also contributed to the depth and robustness of this thesis (97). Chapters 2–5 use a theory-informing design: Chapters 2 and 4 are more exploratory, whereas Chapters 3 and 5 build on previous knowledge and are more explanatory. Chapter 3 employs a two-phase design, and Chapter 5 uses Chapters 2 and 4 as foundation for the statement set in the Q methodology. In summary, the sequence of data collection, theory-informed analysis, and further data collection contributes to an evolving understanding of the social aspects of residents' transition (200).

The sample for this thesis includes residents and PDs from various hospital-based specialties and hospitals, with a wide range of socialization practices. This diverse sampling strategy aligns with the chapter designs, using convenience sampling for exploration (Chapter 2; and Chapter 4) and purposeful sampling for explanation (Chapter 3; and Chapter 5).

Despite its strengths, it is important to acknowledge the inherent limitations in this thesis. First, the studies relied on recall: Chapters 2–4 use interview data (146) such that in Chapters 2 and 3, residents retrospectively reflected on their experiences with their transition period, and the PDs in Chapter 4 had to recall their experiences with several residents. The drawbacks associated with recall include a decline in the quality of gathered data and the inherent limitation of not consistently retaining accurate or detailed information about the past events (146). However, a potential advantage of this approach is that reflecting on a process after a longer time span permits a deeper examination and critical analysis of the events.

Another limitation pertains to the cultural context of this thesis, particularly for residents not in training period, a distinctive feature of the Dutch setting (68). Adopting this

perspective has yielded results that might not be readily transferable to other contexts. However, this contextual specificity is also a strength, in that this research introduces a novel perspective and explores social aspects in a context in which a defined training period is absent.

Another limitation lies in the absence of nurses and advanced care practitioners in the sample, which would have added value by revealing their perceptions and strategies in residents' transitions (40,102).

Finally, for the exploratory designs in Chapter 2 and 4, the research teams used broad interview guides, after which we applied the analytical lens of OS. Because we added the theoretical lens after data gathering, the depth of the information gathered may be limited. Had we opted for a fully theory-informed inductive study design (200), in which theory guides every aspect of the research process, the outcomes could have been different. That said, the purpose of the studies was to enrich understanding of the transition from student to resident from different perspectives, rather than to construct or enhance a theory. In this sense, OS theory played a role in pinpointing processes that occurred beneath the surface and aided in the development of knowledge regarding underlying principles (43).

6.6 Personal reflexivity

Because I adopt a constructivist perspective, which means that reality is subjective and context-specific and that no ultimate truth exists (41), it is imperative to be explicit about my underlying assumptions. This section focuses on my personal reflexivity, wherein I engage in introspection regarding how my personal beliefs and assumptions have influenced my research endeavors (127).

Similar to the residents who contributed to the data sets in this thesis, my personal journey includes many transitions. In 2008, I moved from a little village in Friesland to Amsterdam to start my medical studies. Subsequently, in my clinical path, I transitioned from preclinical medical student to clinical medical student, then to clinical doctor to work as a resident not in training. In 2015, I began my specialty training in anesthesiology. In 2017, I relocated from Leiden to Groningen to continue my training in the northern Netherlands. My last 'big transition' was from being a doctor to becoming a medical education researcher. When I reflect on my transitions, I realize that every transition was meaningful, as I learned by reflecting on these experiences with people in my social network. However, I also experienced stress, due to moving houses, leaving places, and, more important, leaving people. Therefore, a common thread through each of these transitions has been the invaluable support of others who offered a sympathetic ear, guidance, and constructive

feedback to navigate these transformative phases. Another observation during these transitions was the wide spectrum of approaches to orientation and onboarding programs that hospitals and departments offered. This intriguing diversity prompted me to delve deeper into the complexity of transitions and socialization, ultimately leading to the selection of this topic as the focal point of my doctoral thesis.

6.7 Practical implications

The subsequent sections report implications for practice, addressing both organizations (departments, hospitals, and healthcare team members) and individual residents.

6.7.1 How departments, hospitals, and healthcare team members can enhance residents' transitions

Departments and hospitals should adopt a resident-centric perspective when crafting onboarding programs, aiming to impart knowledge on individual strategies and their practical application. These programs should emphasize the significance of building social capital, navigating potential barriers to integration within the healthcare team, leveraging social networks to overcome these challenges, and understanding various organizational strategies. In addition, residents should be exposed to diverse viewpoints during these formal onboarding sessions (dependent, social capitalizing, independent, exploring viewpoints), which will help them identify their own perspectives. If such elements get integrated into onboarding efforts, residents can better navigate the social challenges inherent in the transition. Furthermore, to comply with diverse learning preferences, departments and hospitals should offer a spectrum of onboarding activities, ranging from highly to more loosely structured. This flexibility would provide residents the autonomy to explore, develop, and evolve in their roles, contributing to a smoother and more fulfilling transition process.

To enhance the social aspects of transitions, departments and hospitals should establish faculty development initiatives. These initiatives should extend beyond just supervisors and PDs, targeting peer residents, nurses, and other advanced practice providers who frequently interact with residents. One effective approach is to create interprofessional faculty development initiatives, integrating knowledge of both individual and organizational strategies. These initiatives should particularly focus on the dynamics of the social interactions between newcomer residents and healthcare professionals, emphasizing the ability to discern individual residents' needs in their transitioning. Residency programs should be encouraged to identify residents' preferences for organizational strategies prior to the start of their rotation, with the aim of enhancing their autonomy, competence, and relatedness. Encouraging participants to facilitate a

dialogue between residents and the healthcare team on socialization principles, including norms and culture within the training program or Post Graduate Medical Education (PGME) institution, is crucial. Introducing practical tools such as sociograms into these conversations can enhance discussions and help residents reflect on how to leverage their social networks to achieve their goals.

6.7.2 How individual residents can enhance their transitions

Residents should actively participate in onboarding programs, as detailed in section 6.7.1. Ideally, these programs help residents understand their responsibilities during the transition process, including employing various individual strategies, recognizing the significance of their social capital, addressing the barriers in mobilizing their social capital, and determining their preferences for organizational strategies. Being aware of diverse viewpoints regarding organizational strategies can help residents communicate explicitly with supervisors, PDs, and other healthcare professionals about their specific needs in adapting to their new workplace. Articulating these insights during onboarding courses not only allows residents to internalize this knowledge but also encourages them to share it with their peers, promoting awareness of this crucial subject. Taking leadership in even minor aspects of their work has the potential to contribute to improved well-being among residents.

6.8 Suggestions for further research

Several fruitful research areas remain to be explored. This thesis builds on OS theory's stage models, which describe the progression from a novice member to an integrated and adapted organizational member (45): *anticipation*, which occurs before job commencement; *accommodatio*n, which covers the socialization period during the early stages of employment; and *role management*, in which members develop deeper understanding of the organization (45). The findings of this thesis align with the *accommodation* phase, which involves the learning, sensemaking, and adjustment of individuals to new or changed organizational roles (45). Continued research might incorporate all three phases, in line with the specific suggestions that follow.

The *anticipation* phase for medical residents consists of their time in medical school, internships, and the period outside formal training. Medical school and internships often have well-defined curricula, but the period when residents are not in training offers opportunities for improvement and research. Studies could focus on developing both formal and informal curricula aimed to enhance residents' expectations and ease their transition into specialty training. A formal curriculum centered on OS strategies might shape residents' expectations; informal guidance from role models, mentors, family,

friends, and colleagues can offer additional perspectives to help residents adapt to their new roles (45). Longitudinal research is necessary to assess the impact of such curricula and guidance on residents' perceived quality and comfort of the transition, as well as job satisfaction (25). Research in this vein can help departments and hospitals understand whether such curricula are effective and can guide residents in evaluating whether the curricula actually improve their transition.

The *accommodation* phase, explored in all chapters in this thesis, pertains to residents' and PDs' experiences, as well as residents' preferences for onboarding programs. Future studies should note whether adapting onboarding programs to residents' needs affects their perceptions and the quality of their transition experience (177,202). These studies could compare two groups: one receiving a tailored onboarding program and the other not. The outcome could be focused on residents' perceptions of quality of the transition (e.g., being able to learn, feeling that they are adopted by the healthcare team). This research matters because growing numbers of residents quit their residency, and understanding residents' job satisfaction and retention likelihood could mitigate this attrition (203).

The *role management* phase, relevant to more experienced residents, also offers opportunities for further investigation. Research could explore whether socialization skills and preferences change over time as residents gain experience. Longitudinal studies tracking residents' social capital over time can provide valuable insights into these questions (204,205), especially how their social networks help them cope with challenges. A failure to cope is associated with absenteeism (206). In addition, examining whether more experienced residents, such as final-year residents, differ in their preferences for guidance during their transition to medical specialists would be valuable. It is worth noting that even in the final transition phase, residents may not always feel adequately prepared (207).

This thesis concludes with reflections from Jonathan, the anesthesiology resident whose story opened this thesis, on his onboarding experience in the emergency department.

'I was satisfied with meeting Maaike, the program director, prior to my first day. During this meeting, we discussed my learning goals and preferences for my onboarding period. She showed me literature about residents' different viewpoints regarding their onboarding period. I identified myself with the social capitalizing resident because I appreciate a structured onboarding period, with opportunities for informal social interaction.'

'In my first month, I also participated in an onboarding course for residents. Joining this course with my colleagues contributed to getting to know each other better. Throughout the course, I gained insights into the significance of social relationships, and I learned to represent these relationships in a sociogram. This visualization helped me in identifying my social network, and addressing barriers in social interactions. The course provided me also with strategies to optimize my onboarding period, such as strategies I could use myself, what kind of strategies other healthcare professionals use, and what the department and hospital do. I recognized that this course is part of the hospital's strategy to optimize my transition, and I feel gratitude for organizing such courses.'

'Beyond the formal course, I received valuable support from my peer colleague, Paula, and the nurse, Jason. They offered me guidance on unwritten department rules, including effective approaches to different supervisors. This additional support helped me to smooth my transition'.

Note: This is a fictive narrative based on the findings in this thesis.

Chapter 7

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English summary

In this thesis, we present a comprehensive exploration of the transition from student to resident and the subsequent transitions from one rotation to another within residency, focusing on the social dynamics. Chapter 1 provides the rationale for this dissertation. Following this, we delve into four empirical chapters (chapters 2-5), each addressing different aspects of the transition process. Finally, we conclude with a comprehensive discussion synthesizing our findings and their implications in the general discussion.

In chapter 1, we describe that residents' transitions are commonly perceived as demanding, exhausting and challenging, potentially leading to symptoms of stress, exhaustion, or depression. However, we also describe that transitions present opportunities for growth and development, allowing residents to expand their knowledge and skills through clinical practice and adaptation to diverse contexts and different healthcare teams. To gain acceptance within healthcare teams, residents must learn the team's norms and values, a process called socialization.

The literature on transitions describes three conceptual perspectives: educational, developmental, and social perspectives. While previous research has predominantly focused on educational – i.e. facilitating learning through courses and curriculum innovations – and developmental perspectives – i.e. empowering personal and professional growth through reflective practices and transferable learning strategies – the social dimensions, which involves cultivating social relationships and fostering a supportive learning environment, remains relatively understudied. In particular, little research addresses which strategies residents themselves use to integrate within their new healthcare team, how they use their social capital and social networks to deal with barriers in integrating within this team, how they perceive organizational strategies, and whether residents differ in their preferences for organizational strategies. We, therefore, bridge research gaps by addressing the following central research questions:

1. How do residents navigate the social challenges and opportunities of the transition from student to resident?
2. How do interpersonal and organizational factors affect residents' transition?

Chapter 2 shows an exploration of residents' experiences with their own and other healthcare professionals' strategies to help them adapt to residency, and residents' perceptions of the impact of other healthcare professionals' strategies on their own adaptation efforts. We interviewed 16 second-year residents from different hospital-based specialties about their first year in residency. We used a template analysis based on the individual and organizational tactics originating from the theory of Organizational

Socialization. In this research, we defined Organizational Socialization as 'a process by which an individual acquires the social knowledge and skills necessary to assume an organizational role' (van Maanen & Schein 1979, Chao 2012). During social exchanges with fellow healthcare professionals, residents adopted individual strategies such as active inquiry and establishing social relationships to learn how to behave in their roles as doctors and members of the healthcare team. Residents experienced different strategies from other healthcare professionals, which we clustered into interactional and systemic strategies. Interactional strategies pertained, for example, a supervisor or nurse who knew the individual residents' name and needs, versus a supervisor or nurse who did not know the individual residents' name and needs. Systemic strategies pertained, for example, an extensive introduction period organized by the department, versus no introduction period at all. These strategies either facilitated or hindered residents' adaptation effort. Notably, perceptions of the efficacy of specific strategies varied among residents. For instance, while some residents perceived the absence of a designated role model as beneficial, others regarded it as a hindrance. Residents felt that smooth transitions required strategic approaches from both residents and other healthcare professionals.

In chapter 3 we delve deeper into the individual strategies described in chapter 2. In this chapter, we explore how residents use their social capital and social networks to navigate barriers. The concept of social capital (as described by Lin 2001, Coleman 1988) includes the value of a social network's structure combined with its actors, who serve as resources for information, expertise, and support. Social capital theory posits that social capital empowers residents to accomplish goals, which would not have been achieved without these resources. The goals of residents are, for example, acquiring technical skills or becoming part of a team. Our study, comprising interviews with in total 29 residents across various hospitals and specialties, incorporates the ego network sociogram methodology, encouraging respondents to reflect on the dynamics of their social relationships. Through iterative data collection and analysis, residents articulated both physical and psychological barriers in mobilizing their social capital. In challenging situations, physical barriers often stemmed from a lack of familiarity or certainty regarding the support available form others, or limited physical access to them. In addition, psychological barriers arose when residents perceived the effort required to access specific individuals was too costly. Notably, approaching influential figures such as supervisors and Program Directors was perceived as particularly challenging due to their pivotal roles in patient care and access to specialty training positions. To overcome these barriers, residents leaned on the support of trusted members of their social networks (peers, family, other healthcare professionals), leveraging their support to achieve their goals.

Whereas we highlighted in chapter 2 and 3 residents' perspectives regarding the socialization process during transitions, in chapter 4, we delved into the Program Directors'

(PDs) role. It is crucial to acknowledge the pivotal role of PDs in this process, given their formal responsibility for Postgraduate Medical Education (PGME) and their direct or indirect contribution to residents' socialization. Employing Organizational Socialization (OS) as an analytical lens, this study delved into the strategies PDs utilized to facilitate organizational socialization of newcomer residents. Through 17 semi-structured interviews with PDs from diverse hospital-based specialties, we employed a theory-informing inductive data analysis design. This involved an inductive thematic analysis followed by a deductive interpretation through the lens of OS and, subsequently, an inductive analysis to identify overarching insights. We could identify six PD strategies which could be described as follows: 1) Approach to newcomer residents: PDs engaged with newcomers either as a group or as individuals. 2) Facilitation of role learning: PDs facilitated newcomers in learning their roles through formal or informal introduction programs. 3) Integration with healthcare professionals: PDs enabled newcomers to get acquainted with other healthcare professionals, either actively or indirectly. 4) Responsiveness to residents' development: PDs adjusted the content of roles either after a fixed time frame or without a predefined limit. 5) Role modelling: PDs demonstrated explicit or implicit role modelling behaviors. 6) Adaptation of approach: PDs tailored their approach to align with newcomer residents' characteristics or expected residents to conform to workplace norms. Overarching, two insights could be extracted; first, PDs varied in the extent to which they planned their guidance. Some PDs planned socialization as an explicit learning objective and assigned residents' tasks and responsibilities accordingly, making it an intended program outcomes. Socialization was also facilitated by social interactions in the workplace, making it an unintended program outcome. Second, PDs varied in the extent to which they adapted their strategies to the newcomer residents. Some PDs used individualized strategies tailored to individual residents' needs and skills, particularly in cases of poor performance, by broaching and discussing the issue or adjusting tasks and responsibilities. However, PDs also used workplace-centered strategies requiring residents to adjust to the workplace without much intervention, which was often viewed as an implicit expectation.

Chapter 2 and 4 explored residents' and PDs' experiences and perceptions of organizational strategies to optimize residents' transition. However, these chapters lacked a comprehensive overview of which strategies best suited individual residents. Therefore, in chapter 5, we conducted a study using Q-methodology to discern patterns in residents' preferences for organizational strategies aimed at optimizing their next transition. Drawing form the findings of Chapter 2 and 4, we crafted 42 statements for residents to rank, with 51 participants taking part in the study. The analysis revealed that 36 residents displayed four distinct viewpoints: 1) Dependent residents (n=10) favored a task-oriented approach, clear guidance, and formal colleague relationships; 2) Social capitalizing residents (n=9) preferred structure in the onboarding period and informal workplace social interactions; 3) Autonomous residents (n=12) prioritized a loosely structured

onboarding period, independence, responsibility, and informal social interactions; and 4) Development-oriented residents (n=5) desired a balanced onboarding period that allowed independence, exploration, and development. By identifying four distinct viewpoints, we underscored the inadequacy of a one-size-fits-all approach in guiding residents through their transitions. Healthcare professionals and departments should tailor their socialization strategies to residents' preferences for support, structure, and formal/informal social interactions.

Finally, chapter 6 displayed a general discussion about the findings presented in this thesis. In this chapter we interpreted our findings by combining results of the studies presented in the other chapters, placed them within a larger theoretical framework, discussed the strengths and limitations, discussed the practical implications, and made suggestions for further research. Addressing the first research question - *How do residents navigate the social challenges and opportunities of the transition from student to resident?* – we elucidated that residents negotiate these transitions by prioritizing adaptation and integration into healthcare teams through the socialization process. Engaging with diverse healthcare professionals, residents deploy individual strategies such as observation, inquiry, and relationship-building to alleviate uncertainty and adapt into their new roles, leveraging their social networks for support. Regarding the second research question - *How do interpersonal and organizational factors affect residents' transition?* – we drew comparisons between the perspectives of residents and PDs on strategies to facilitate these transitions. We identified nuanced preferences for different strategies, with residents and PDs expressing contrasting views on adaptation strategies, underscoring the complexity of guiding residents through their transitions. This underscores the imperative for flexible learning pathways and tailored support from healthcare professionals to facilitate successful transitions.

The thesis demonstrates methodological rigor through the utilization of diverse theories and methodologies involving multiple stakeholders and a varied research team, resulting in the concept of 'crystallization'. This concept entails employing various theoretical frameworks, diverse data collection methods, and collaborative efforts among researchers to gain a nuanced understanding of the social aspects of residents' transitions. The integration of theories from related fields reflects the evolving trend in health professions education (HPE) to draw on theories from adjacent domains. The thesis addresses the lack of theoretical foundations in HPE research and highlights the increasing acceptance of theory application, particularly micro-level theories like Organizational Socialization, Social Networks, and Social Capital. We employed diverse methodological approaches, including qualitative, mixed-methods, and innovative designs such as ego-network sociograms, and Q methodology. These approaches enriched our understanding of residents' transitions.

Practical implications of this thesis extend to both organizations and individual residents. Organizations should adopt resident-centric onboarding programs focusing on individual strategies, building social capital, guiding in handling integration barriers, and understanding organizational strategies. Residents, in turn, should actively engage in these programs, understanding their responsibilities, acknowledging diverse viewpoints, and articulating their needs to healthcare professionals, thereby fostering smoother transitions, and enhancing their well-being. Future studies could explore how socialization skills evolve over time and whether experienced residents require different forms of guidance as they transition to medical specialists, addressing potential gaps in preparation even in the final stages of residency.

Nederlandse samenvatting

Dit proefschrift richt zich op de transitie van student naar arts-assistent en van de ene stage naar de andere binnen de opleiding tot medisch specialist. We focussen specifiek op de sociale aspecten van de transities. Hoofdstuk 1 beschrijft de rationale van dit proefschrift. Daarna volgen er 4 empirische hoofdstukken, waarin elk hoofdstuk specifieke aspecten van het transitieproces beschrijft. We concluderen met een uitgebreide algemene discussie, waarin we onze bevindingen en implicaties beschrijven.

In hoofdstuk 1 starten we met het probleem. Namelijk dat arts-assistenten transities vaak ervaren als veeleisend, uitputtend en uitdagend, wat mogelijk kan leiden tot stress, uitputting of depressie. Echter, transities kunnen ook kansen bieden voor groei en ontwikkeling. Bijvoorbeeld door in een verschillende klinische contexten te werken, waardoor arts-assistenten op verschillende plekken een breed scala aan kennis en vaardigheden leren. Doordat ze op verschillende plekken werken, leren ze ook hoe ze kunnen omgaan met deze verschillende contexten en zorgteams. Dit laatste, onderdeel worden van een zorgteam, wordt bewerkstelligd door een proces wat socialisatie heet. In dit proces leren arts-assistenten de normen en waarden van een specifiek team.

Eerder onderzoek heeft zich vooral gericht op educatieve aspecten, bijvoorbeeld het vergemakkelijken van de transitie door het optimaliseren van cursussen en innovaties in de curricula, of ontwikkelaspecten, zoals de nadruk leggen op de persoonlijke en professionele groei van het individu. Echter, de sociale aspecten van transities, die bestaan uit het cultiveren van sociale relaties en het bevorderen van een ondersteunende leeromgeving, zijn relatief onderbelicht. Met name is nog niet goed onderzocht welke strategieën arts-assistenten zelf gebruiken om te integreren in hun nieuwe zorgteam, hoe ze hun sociaal kapitaal en sociale netwerken gebruiken om met barrières in deze integratie om te gaan, hoe ze organisatiestrategieën waarnemen en of arts-assistenten verschillen in hun voorkeuren voor organisatiestrategieën. Wij vullen deze leemte in onderzoek door de volgende centrale onderzoeksvragen te stellen:

1. Hoe gaan arts-assistenten om met de sociale uitdagingen en kansen in de transitie van student naar arts-assistent?
2. Hoe beïnvloeden interpersoonlijke en organisatorische factoren de overgang van arts-assistenten?

In hoofdstuk 2 beginnen we met hoe arts-assistenten zelf hun socialisatie tijdens de transitie vormgeven: welke strategieën gebruiken zij om zich aan te passen aan hun nieuwe werkplek. Daarnaast onderzochten we wat de percepties van arts-assistenten zijn en welke strategieën andere zorgverleners gebruiken om arts-assistenten te laten

aanpassen aan hun nieuwe werkplek. Ook hebben we onderzocht wat de impact van de strategieën van andere zorgverleners is op de aanpassingsstrategieën van arts-assistenten. Daarvoor hebben we 16 junior arts-assistenten van verschillende ziekenhuisspecialismen geïnterviewd over hun eerste jaar als arts-assistent. Op basis van organisatiesocialisatie theorie hebben we een template analyse uitgevoerd en de individuele en organisatiestrategieën geëxtraheerd. Organisatiesocialisatie definiëren we in dit onderzoek als 'het proces waarin het individu de sociale kennis en vaardigheden leert die nodig zijn om zich aan te passen aan een nieuwe rol binnen een organisatie' (van Maanen & Schein 1979, Chao 2012). De template analyse van de semigestructureerde interviews liet zien dat arts-assistenten verschillende strategieën gebruikten om onderdeel te worden van het zorgteam, zoals actief vragen en het opbouwen van sociale relaties. De arts-assistenten rapporteerden ook dat andere zorgverleners verschillende strategieën gebruikten om hun aan te laten passen aan hun nieuwe rol. Deze strategieën konden verdeeld worden op het niveau van bejegening en kennismaking met het zorg- en opleidingssysteem. Illustratieve strategieën voor de bejegening was bijvoorbeeld of de supervisor of verpleegkundige de naam van de arts-assistent en zijn of haar behoeften kende, versus de supervisor of verpleegkundige die de arts-assistent zag als één van de vele arts-assistenten, zonder aandacht te hebben voor de behoeften van de arts-assistent. Illustratieve strategieën voor het systeem waren bijvoorbeeld of een afdeling een uitgebreide introductieperiode had georganiseerd, versus de afwezigheid van een introductieperiode waarin de arts-assistent het werk leerde door het gewoon maar te doen. De Organisatiestrategieën werkten zowel faciliterend als belemmerend op de strategieën van arts-assistenten. Bijvoorbeeld, als zorgprofessionals benaderbaar waren, dan stelden arts-assistenten makkelijk vragen, terwijl als arts-assistenten voelden dat ze zich moeten aanpassen aan de (impliciete) normen en gedragingen van de werkplek, dan ervoeren ze een drempel om vragen te stellen. Deze resultaten laten zien dat het socialisatieproces tijdens een transitieperiode een wisselwerking is tussen de individuele arts-assistent, andere zorgprofessionals en de organisatie.

In hoofdstuk 3 gaan we dieper in op de individuele strategieën van hoofdstuk 2. We doen dit door te exploreren hoe arts-assistenten hun sociaal kapitaal en sociale netwerken gebruiken om te leren omgaan met barrières die ze ervaren in moeilijke sociale situaties. Het concept sociaal kapitaal (Lin 2001, Coleman 1988) definiëren we in dit hoofdstuk als volgt: de sociale relaties van iemand vormen een sociaal netwerk en deze sociale relaties bieden kapitaal (bronnen) in de vorm van informatie, expertise en steun. Deze bronnen helpen arts-assistenten om hun doelen te bereiken. In de theorie wordt gesteld dat zonder deze bronnen arts-assistenten hun doelen niet kunnen halen. De doelen van arts-assistenten zijn bijvoorbeeld het verwerven van technische vaardigheden of in opleiding komen. In deze studie hebben 29 arts-assistenten van verschillende ziekenhuizen en specialismen geïnterviewd. Door middel van ego-netwerkanalyse, werden respondenten

aangemoedigd om te reflecteren op de dynamiek van hun sociale relaties. Arts-assistenten rapporteerden zowel fysieke als psychologische barrières in het mobiliseren van hun sociaal kapitaal. Fysieke barrières ontstonden vaak door een gebrek aan bekendheid of zekerheid over de beschikbare steun van anderen, of beperkte fysieke toegang tot hen. Psychologische barrières ontstonden wanneer arts-assistenten de inspanning die nodig was om specifieke personen te benaderen als te kostbaar beschouwden. Het benaderen van invloedrijke figuren zoals supervisoren en opleiders werd als bijzonder uitdagend werd ervaren vanwege hun cruciale rol in de patiëntenzorg en toegang tot de medische vervolgopleiding. Om deze barrières te overwinnen, vertrouwden arts-assistenten op de steun van vertrouwde leden (zoals mede arts-assistenten, familie en andere zorgprofessionals) van hun sociale netwerken. Ze benutten deze steun om hun doelen te bereiken.

Waar we in hoofdstuk 2 en 3 het arts-assistentenperspectief hebben belicht, laten we in hoofdstuk 4 het opleidersperspectief zien. Opleiders zijn cruciaal in het transitieproces, omdat zij een sleutelrol spelen in dit proces. Enerzijds omdat zij een formele verantwoordelijkheid hebben voor de opleiding en anderzijds vanwege hun directe of indirecte bijdrage aan de socialisatie van arts-assistenten. Door organisatiesocialisatie te gebruiken als analytische lens, doken we in deze studie in de strategieën die opleiders gebruikten om de organisatiesocialisatie van nieuwe arts-assistenten te ondersteunen. Zeventien opleiders van verschillende specialismen en ziekenhuis werden geïnterviewd. De analyse bestond uit een inductieve thematische analyse, een deductieve interpretatie met de lens van organisatiesocialisatie en vervolgens een inductieve analyse om overkoepelende inzichten te identificeren. De strategieën van opleiders kunnen als volgt worden beschreven: 1) Benadering van nieuwkomers: opleiders benaderden arts-assistenten als groep of als individuen. 2) Faciliteren van het leren van hun rol: opleiders faciliteerden arts-assistenten bij het leren van hun rollen via formele of informele introductieprogramma's. 3) Integratie met zorgverleners: opleiders stelden art-assistenten in staat om kennis te maken met andere zorgverleners, actief of indirect. 4) Responsiviteit ten opzichte van de ontwikkeling van arts-assistenten: opleiders pasten de inhoud van rollen aan na een bepaalde tijd of zonder vooraf bepaalde grenzen. 5) Rolmodellen: opleiders gedroegen zich expliciet of impliciet als rolmodel. 6) Aanpassing van de benadering: opleiders pasten hun benadering aan om aan te sluiten bij de kenmerken van art-assistenten of verwachtten van art-assistenten dat ze zich aanpasten aan de normen op de werkplek. Overkoepelend konden twee inzichten worden geëxtraheerd; ten eerste varieerden opleiders in hoeverre ze hun begeleiding vorm gaven. Sommige opleiders zagen socialisatie als een expliciet leerdoel en wezen taken en verantwoordelijkheden toe aan art-assistenten volgens dit plan, waardoor het een beoogd opleidingsdoel werd. Socialisatie werd ook gefaciliteerd door sociale interacties op de werkplek, waardoor het een onbedoeld opleidingsdoel werd. Ten tweede varieerden opleiders in hoeverre ze hun

strategieën aanpasten aan de art-assistenten. Sommige opleiders pasten de strategieën aan op de individuele behoeften en vaardigheden van arts-assistenten, met name als ze slecht presteerden. Opleiders gebruikten echter ook werkplekgerichte strategieën, waarbij van arts-assistenten werd verwacht dat ze zich aanpasten aan de (impliciete normen van de) werkplek.

In hoofdstuk 5 bouwden we voort op de bevindingen van hoofdstuk 2 en 4. In dit hoofdstuk hebben we onderzocht welke voorkeuren arts-assistenten hebben voor organisatiestrategieën gericht op het optimaliseren van hun volgende transitie. Gebaseerd op de bevindingen van hoofdstuk 2 en 4 hebben we 42 stellingen geformuleerd. Eenenvijftig participanten rangschikten deze stellingen in een quasi-normaal verdeeld raster. Met persoonsgerichte factoranalyse konden we vier standpunten onderscheiden. 1) afhankelijke arts-assistenten (n=10) gaven de voorkeur aan een taakgerichte benadering, duidelijke begeleiding en formele collegiale relaties; 2) sociaal kapitaliserende arts-assistenten (n=9) prefereerden structuur in de inwerkperiode en informele sociale interacties op de werkplek; 3) autonome arts-assistenten (n=12) gaven prioriteit aan een losjes gestructureerde inwerkperiode, onafhankelijkheid, verantwoordelijkheid en informele sociale interacties; en 4) ontwikkelingsgerichte arts-assistenten (n=5) verlangden een evenwichtige inwerkperiode die onafhankelijkheid, verkenning en ontwikkeling mogelijk maakte. Met het onderscheiden van vier standpunten, laten we zien dat één manier van het begeleiden van arts-assistenten in hun transities ontoereikend is. Zorgverleners en afdelingen zouden hun socialisatiestrategieën moeten aanpassen aan de voorkeuren van arts-assistenten voor ondersteuning, structuur en formele/informele sociale interacties.

Tot slot volgt in hoofdstuk 6 een overkoepelende beschouwing van de onderzoeksresultaten. In dit hoofdstuk hebben we de bevindingen van de verschillende studies gecombineerd, geplaatst in een groter theoretisch kader, de sterke punten en beperkingen van de studies besproken, de praktische implicaties besproken en hebben we suggesties gedaan voor verder onderzoek. De eerste onderzoeksvraag: *Hoe gaan arts-assistenten om met de sociale uitdagingen en kansen in de transitie van student naar arts-assistent?* hebben we beantwoord door te laten zien dat arts-assistenten in interactie met andere zorgverleners, verschillende individuele strategieën hebben ingezet zoals observatie, vragen stellen en relaties opbouwen om onzekerheid te verlichten en zich aan te passen aan hun nieuwe rollen, waarbij ze gebruik maken van hun sociale netwerken voor ondersteuning. Wat betreft de tweede onderzoeksvraag: *Hoe beïnvloeden interpersoonlijke en organisatorische factoren de overgang van arts-assistenten?* trokken we vergelijkingen tussen de perspectieven van arts-assistenten en opleiders over strategieën om deze overgangen te vergemakkelijken. We lieten zien dat arts-assistenten en opleiders soms dezelfde, maar soms ook een tegenstrijdige opvatting hadden over de verschillende

socialisatiestrategieën. Verder hebben we vier verschillende typen arts-assistenten geïdentificeerd, waarbij ze hun voorkeuren hebben aangegeven voor verschillende socialisatiestrategieën. Dit onderstreept de noodzaak van individuele leertrajecten en op maat gemaakte ondersteuning van zorgverleners om succesvolle transities te bevorderen.

De methodologische nauwkeurigheid van dit proefschrift komt tot uiting door het gebruik van diverse theorieën en methodologieën, verschillende groepen participanten en een gevarieerd onderzoeksteam. Dit concept wordt ook wel 'kristallisatie' genoemd. Dit concept houdt in dat verschillende theoretische kaders, diverse methoden voor gegevensverzameling en samenwerkingsinspanningen tussen onderzoekers worden toegepast om een genuanceerd begrip van de sociale aspecten van de transities van arts-assistenten te verkrijgen. De integratie van theorieën uit verwante vakgebieden weerspiegelt de evoluerende trend in de literatuur omtrent zorgprofessionals, om theorieën uit aangrenzende domeinen te gebruiken. Dit proefschrift draagt bij aan theorievorming, door het toepassen van verschillende aanpalende theorieën uit organisatiesocialisatie, sociaal kapitaal en sociale netwerken. Bovendien hebben we diverse methodologische benaderingen gebruikt, waaronder kwalitatieve, mixed-methods en innovatieve ontwerpen zoals ego-netwerksociogrammen en Q-methodologie. Deze benaderingen verrijken het begrip van de transities van arts-assistenten.

De praktische implicaties van dit proefschrift strekken zich uit tot zowel organisaties als individuele arts-assistenten. Organisaties zouden persoonsgerichte introductieprogramma's moeten ontwikkelen, gericht op individuele strategieën, het opbouwen van sociaal kapitaal, hoe ze om kunnen gaan met barrières, in onderdeel worden van een team en het begrijpen van organisatiestrategieën. Arts-assistenten zouden op hun beurt actief moeten deelnemen aan deze programma's, waarin ze leren wat hun verantwoordelijkheden zijn ten aanzien van het socialisatieproces, waardoor transities soepeler worden. Toekomstig onderzoek zou zich kunnen richten op hoe socialisatievaardigheden in de loop van de tijd evolueren en of ervaren arts-assistenten een andere manier van begeleiding nodig hebben wanneer ze de transitie maken naar de rol van medisch specialist.

Supplementary files

Chapter 2

Appendix 1. Interview Guide

The exploratory, in-depth interviews were conducted around the central question: 'How did you experience your first year as a resident?'.

Introductory Interview

- Where did you study, and what was your experience after graduation?
- What was your role and where your responsibilities?
- How long have you been in your current position as a resident in training?
- In which departments have you worked and what were the differences?
- What were your responsibilities during your first year as resident?

Core Interview Phase

- How did you experience your first year as a resident in training?
- Did you feel pressure, and if so, under what circumstances?
- Did you experience stress, and if so, what were the reasons for the stress?
- How do you reflect on the expected / unexpected responsibilities of your first year?
- Why did you find some responsibilities unexpected?
- Did you experience the support from your colleagues? From whom? And where does this support come from?
- Did you receive feedback? From whom and how did you perceive this feedback?
- Did you feel valued in your work? By whom and for what reasons?
- Who have you learned a lot from? And for what purpose

Chapter 3

Appendix 1, Interview guide 1

See Chapter 2, interview guide.

Appendix 2, Interview guide 2

Background information

1. What is your gender?
2. What is your age?
3. In what specialty do you work?
4. How many months do you work since graduating from medical school?
5. Do you already work in 'on-call situations'?

The interview consists of 4 parts:

Part 1: If you need any help in your work as a resident, who do you ask, for what, and why (for what goal)?

Part 2: Can you describe a challenging situation in which you needed help, but you were unable to get this help, or you had the feeling of being lonely?

- What happened in this situation?
- Who was present in this situation?
- Who was absent in this situation, while you would like that they would be there?
- Can you write down all the people involved in the situation on Post-its
- Can you place the Post-it in one of the categories, and within one of the circles? If you place people closer, it means that you easily approach that specific person.
- What did you miss from the absent person and why? Which support did you want to receive?
- What was the consequence of the lack of support (did you receive your goal yes or not)
- What is the relation between people on the sociogram, can you draw a line if they know each other?

Part 3: Can you describe a challenging situation in which you needed help and you get the help you wanted?

- What happened in this situation?
- Who was present?
- Can you write down all the people involved in the situation on Post-its
- Can you place the Post-it in one of the categories, and within one of the circles? If you place people closer, it means that you easily approach that specific person.

- From whom did you receive help and for what goal?
- Why were you able to get help in this situation?
- What is the relation between people on the sociogram, can you draw a line if they know each other?

Part 4: If you compare sociograms of both situations. Why were you in the first situation unable to get help, why you were able to get help in the second situation? Can you reflect on that?

Chapter 4

Appendix 1; topic list

PDs were provided with a background introduction and the goal of the research

1. What is the background of residents when they start with residency (doctor-not-in-training, PhD-trajectory, last clerkship during medicine)?
2. In which situations do you collaborate with residents?
3. Which differences do you acknowledge between an unexperienced and an experienced resident?
    a. Different tasks
    b. Degree of supervision
    c. Clinical tasks
    d. Non-clinical tasks; organization, responsibility, collaborating, communication, learn how to work
4. What happens with a resident in his/her first job?
5. Which growth do you see in the residents' first period?

Chapter 5

Appendix 1.

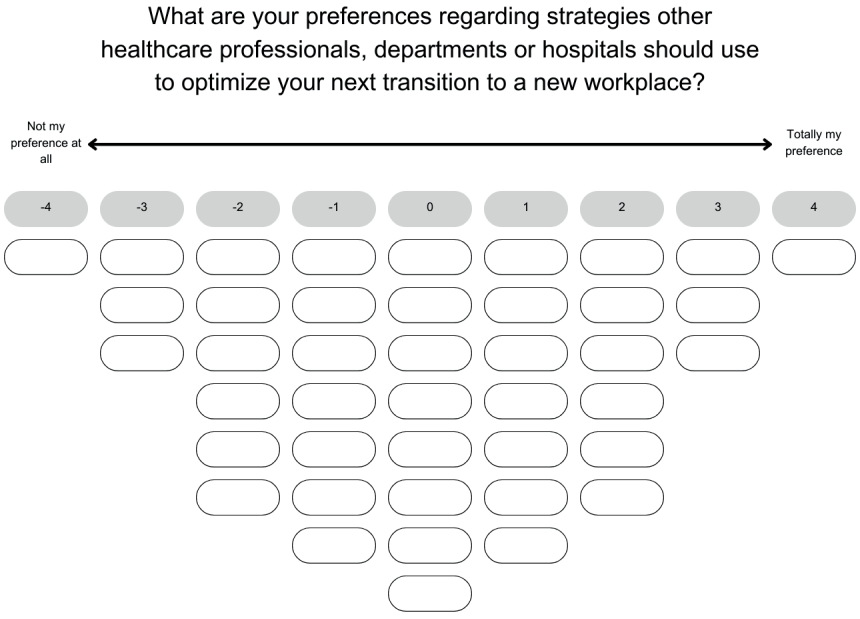

Fig 2. The 42-statement sorting grid, with the prompting question participants used to arrange the statements.

Appendix 2. Post-sort questionnaire

For proposition participant strongly did not prefer (–4):

1. Can you explain why this statement is not your preference at all?

For proposition participant preferred strongly (+4):

2. Can you explain why this statement is entirely your preference?

Demographics

3. What is your age?
4. What is your gender?
    a. Female
    b. Male
    c. Other
5. In which specialty do you work?
    a. urgical specialty (including thoracic surgery, general surgery, neurosurgery, maxillofacial surgery, orthopedic surgery, plastic surgery, obstetrics and gynecology, ophthalmology, otorhinolaryngology, urology)_
    b. Medical specialty (including cardiology, geriatrics, internal medicine, neurology, pediatrics, psychiatry, rheumatology, dermatology, gastroenterology, rehabilitation medicine, pulmonary medicine)
    c. Supportive specialty (including microbiology, radiology and nuclear medicine, pathology, anesthesiology, clinical genetics, radiotherapy)

6. What is your experience?
    a. Resident not in training
        i. < 1 year clinical experience
        ii. > 1 year clinical experience
    a. Specialty training resident
        i. Postgraduate year 1
    ii. Postgraduate year 2

7. How many residents are working in your department (including residents not in training and residents in specialty training)?
    a. 1–5
    b. 5–10
    c. >10

8. What type of hospital do you work in?
    a. Academic
    b. General

9. Where did you study medicine?
    a. University Medical Center Groningen
    b. Amsterdam University Medical Center, location AMC
    c. Amsterdam University Medical Center, location VUMc
    d. University Medical Center Utrecht
    e. Radboud University Medical Center Nijmegen

f. Leiden University Medical Center
g. Erasmus Medical Center, Rotterdam
h. Maastricht University Medical Center
i. Other

10. In this study, we define a transition as 'the transition from one hospital to another'. How many transitions have you experienced, counting from the time of graduation?
    a. None: I work at the same hospital where I did my final internship.
    b. 1
    c. 2
    d. 3
    e. 4
    f. >4
11. How long have you been working in your current department?
    a. 1–3 months
    b. 4–6 months
    c. 7–9 months
    d. > 10 months
12. Do you have the feeling that you know the ins and outs of the department? Why or why not?
    a. Open answer

13. How long does it take you to get settled into a department?
    a. 1 month
    b. 2–3 months
    c. 4–6 months
    d. >6 months

Appendix 3. Decision-making criteria.

On the basis of the decision-making criteria, we determined that we could extract three to five factors from the data set. We conducted a by-person factor analysis with Brown centroids for three, four, and five factors.

Table 3. Decision-making criteria: Principal component analysis (PCA) and centroid Brown methods (Watts & Stenner, 2012: 105)

Decision-making criteria:	Centroid Brown (n = number of factors to be extracted based on the specific criterion)	PCA (n = number of factors to be extracted based on the specific criterion)
Kaiser Guttman criteria	6	8
Significant loading at the 0.01 level (>0.40) - At least 3 q-sorts	4	5
Humphrey's rule: cross product of its two highest loadings exceeds the standard error (0.15)	4	5
Scree test (only for PCA)	n.a.	4

For the four-factor solution, we conducted a PCA and Centroid Brown factor array. The factors emerged as similar, indicating that the different methods did not produce significantly different outcomes.

We developed crib sheets based on the decision-making criteria for the three-, four-, and five- factor solutions (centroid-Brown–Varimax). Six researchers (GG, JS, GW, IG, JB, LL) independently interpreted the cribsheets. Then we held a meeting to discuss our findings. We came to consensus that the 5-factor solution was not appropriate; it did not meet all the decision-making criteria (i.e., one factor only had 1 significant loading at the .01 level). The three- and four-factor solutions met both the criteria (Appendix 2, Watts & Stenner, 2012: 4): They

1. Maximize the number of q sorts that load significantly on the extracted factors,
4. Explain a healthy amount of the overall study variances, and
3. Allow for satisfying both (1) and (2) using an appropriate number of factors.

Table 4, Comparison of the Three-factor and Four-factor solution

	Three-factor	Four-factor
Number of Q-sorts loading	39	36
Number of Q-sorts per factor (F1-F2-F3-F4)	17-13-9	10-9-12-5
Variance (%)	48	51
Variance per factor (F1-F2-F3-F4)	18-17-13	13-12-15-11

Although the three- and four- factor solutions were similar, in the four-factor solution, the fourth factor accounted for 11% of the variance, with five sorts loading significantly. Furthermore, this factor was distinguishable from the other three factors and easily interpretable.

Appendix 4. Consensus statements

Residents across all viewpoints expressed preference for an open atmosphere (S42, +3, +4, +3, +4) in which they had room to make mistakes (S17, +2, +3, +2, +2). In the post-sort questionnaire, residents emphasized that an open atmosphere contributed to safe patient care, job satisfaction, and a safe learning environment where they could learn from their mistakes, stating, for example:

> *Making mistakes is inevitable in a new job (or even in longer employment), but if there is no room for it, it leads to bluffing or concealment, which is detrimental both to the patient and to one's own learning process. (R43)*

Furthermore, the viewpoints did not differentiate significantly in terms of nurses' value for them. All residents found it important to consult nurses when they were uncertain (S36, +2, +1, +2, +3). As one resident acknowledged: '*Nurses have a lot of practical knowledge/ knowledge of clinical picture, things you sometimes miss as a beginning resident' (R5).*

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samen naar de atlas.ti cursus te gaan in Rotterdam, maar ook elkaar ontmoeten tijdens LEARN-dagen, of tussendoor even sparren over de interviews in mijn proefschrift. **Karin Zuiderhoek,** als ambtelijk secretaris van de COC kenden we elkaar al van de tijd dat ik nog voorzitter was van de AV. Daarna heb je me enorm geholpen met de verspreiding van de uitnodigingen van de laatste studie binnen de hele regio. **Marjan Mourits**, bedankt voor jouw uitnodiging als spreker bij het symposium van de VNVA en voor je goeie carrièretips.

Op het NVMO-congres in november 2019 liet **Ellen Driever** me kennis maken met **Iris Jansen**. Dit was het begin van een ontzettend leuke samenwerking met **Iris.** Lieve Iris, bedankt dat we samen de online NVMO-promovendi estafettes hebben georganiseerd en dat ik coauteur mocht zijn op jouw guiding-study. Ook hebben we samen met **Joyce Kors** en **Ellen Driever** de eerste online editie van de NVMO- promovendi dag georganiseerd, bedankt voor de enorme lol die we toen hadden.

De NVMO zorgde er ook voor dat ik een hoop andere promovendi leren kennen. Zoals de club promovendi uit Nijmegen, **Larissa Ruczynski, Myrthe Verhees, Mariëlle van Wijngaarden, Lara Teheux** (bedankt voor het leuke ICRE-congres in Montreal). Maar ook **Linda Roossien, Carolin Sehlbach, Miriam Wijbenga** en nog vele anderen. Ik vind het enorm waardevol dat deze club promovendi een paar jaar samen heeft opgetrokken, waarbij we elkaar regelmatig tegenkwamen op congressen en NVMO-promovendi-dagen. Through **Iris Jansen**, I had the pleasure of meeting **Rosa Bogerd** en **Sofiya Abidali**. I would like to thank you for our nice conference in Stalheim hotel, Norway.

In autumn 2021, I had the opportunity to participate in the virtual writing masterclass organized by **Lorelei Lingard, Chris Watling, and Sayra Cristancho**. I would like to thank you for your support and guidance throughout the program. This course helped me a lot during the rest of my PhD journey. A special thank you to **Sayra,** with whom I had the pleasure of meeting at conferences in Lyon and Glasgow. Your insights and expertise have been inspiring. I am grateful for your kind invitation to visit your institution in Autumn 2024, and I eagerly anticipate the opportunity to engage further with you and your work.

Roberta Preston, we connected during an online AMEE conference. I am grateful for the insights you've shared regarding the Canadian residency system, which have been invaluable to me. I eagerly anticipate our upcoming research project and am particularly excited about visiting your institution in Autumn 2024.

In April 2023, I participated in the writing retreat organized by ASME in Leeds. I extend my gratitude to all the participants, with special appreciation for the organization led by **Alison Ledger, Michal Tombs, Stephanie Bull, and Amaya Ellawala.** I also want to

express my thanks to **Adarsh Shah** for the ongoing support following the retreat. Our exchanges regarding the progress of our theses have been invaluable.

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Tijdens de coronapandemie begon de werkdag af en toe met een duik in het koude water. Dank voor de gezelligheid en steun in die periode, met de leden van de dipclub: **Carolien Fleurke, Wenda Stoffel, Martje Visser en Louise Hof.**

Heleen Hoogeveen en Klaziena Politiek, al sinds de middelbare school zijn jullie mijn vriendinnen. Tijdens mijn promotietraject waren jullie een enorme steun en toeverlaat. Tijdens de coronaperiode zagen we elkaar met ochtendlijke gymnastieksessies in het Reitdiep, zijn we gaan buitenzwemmen, wielrennen, en hebben jullie me enthousiast gemaakt voor mountainbiken, trailrunning, oriëntatielopen, triatlons en meer. Telkens weer weten jullie met nieuwe buitenactiviteiten te komen, die voor een welkome

afleiding zorgen van het dagelijks werk. Extra bijzonder vind ik het dat jullie nu ook mijn paranimfen zijn.

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About the author

Gerbrich Galema was born in it Heidenskip, the Netherlands, in 1989. After completing secondary education (VWO) at the Bogerman College Sneek in 2007, she had a gap year. In 2008, she started Medicine at the University of Amsterdam. In the final months of medical school, she was accepted for a postgraduate medical training position in anesthesiology at Leiden University Medical Center. However, she also wanted to collect some experience as a resident not in training in the ICU in the UMCG. After two years of postgraduate training in Leiden, she moved for private reasons to Groningen to continue her training in anesthesiology in Groningen. During this transition, Gerbrich started her research about transitions. She also was the chair of the Residents' Association in the UMCG, in which she experienced what challenges residents perceived during their transitions. In 2019, she was awarded the 'wetenschapsfonds' of the Northeastern Educational Region, which allowed her to continue with a full PhD trajectory. During this trajectory, she collaborated with national and international researchers from different disciplines. She was allowed to present her work at several national and international conferences. Moreover, Gerbrich co-supervised several students and sat on several extra-curricular committees including the Residents Association within the UMCG and the region, the board of the Netherlands Association of Medical Education (NVMO) and NVMO PhD day, stuurgroep Koers25 of the UMCG, and the Committee of Quality documents of the Netherlands Association of Anesthesiologists (NVA). Gerbrich initiated a masterclass about systems thinking, which incorporated aspects of socialization and her PhD, as a training for residents within the UMCG and other affiliated hospitals. Currently, Gerbrich is practicing medicine as a resident in training at the Department of Anesthesiology, and is continuing her work as a postdoctoral researcher at the Department of Anesthesiology. Gerbrich's wish for the future is to contribute to the sustainable employability of residents and healthcare professionals in general.

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