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### Providing color to the pharmacy technician

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# Chapter 6

## General discussion

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## **General discussion**

The purpose of this thesis was to understand how the addition of the profession of the pharmacy technician to the pharmacy workforce was received in the field, and to explore the subsequent role development that took place, influenced by daily pharmacy practice. The research in this thesis aimed to provide color to the pharmacy technician, to color in this new profession. It set out to explicate the roles and responsibilities pharmacy technicians have taken on, and to clarify how the integration of this new profession in existing pharmacy practice is construed. These objectives guided the research questions that constitute this thesis:

- 1. What are the roles and responsibilities pharmacy technicians have taken on, both nationally and internationally?*
- 2. How is the addition of this new profession in existing pharmacy practice construed?*

In this chapter, an overview of the most important research results is provided. Also, a reflection is given upon the data of this thesis in light of recent literature on other advanced practice professionals in health care, such as nurse practitioners, dental hygienists and physician associates. Then, the strengths and limitations of the conducted studies are addressed, as well as the practical implications. The chapter ends with the directions for future research regarding the profession of the pharmacy technician.

## **Main findings of this thesis**

**Chapter 2** presented a scoping review on the increasing interest in implementing pharmacy support workforce cadres worldwide. This interest is fuelled by the need to extend the clinical roles of pharmacists and to expedite the transition from product to patient care. The review was supported by key papers on the relationship between pharmacy technicians, pharmacy support workforce cadres and pharmacists. These papers illustrated how the development of practice models for improved patient care led to a desire to increase a pharmacists' visibility and engagement in clinical care. Consequently, there has been an increasing interest in utilizing pharmacy support workforce cadres to allow for this extension of pharmacists' clinical roles. The scoping review clearly showed that the optimal use of supporting pharmacy workforce cadres has gained momentum. Numerous examples

provided proof of pharmacists having been able to extend their clinical role by making greater use of pharmacy technicians or other pharmacy support workforce cadres. Furthermore, the literature showed that over the years, the roles taken on by pharmacy support workforce have expanded. They moved from performing relatively simple tasks (administrative and supply functions) to conducting more complex pharmaceutical patient care, such as independent checking of prescriptions or the management of patient adherence programs. Following this development and expansion of the roles of the pharmacy support workforce, requirements for education, regulation and registration are discussed in literature. Lastly, the review reported the importance of clearly defining the role of both the pharmacist and other pharmacy cadres in practice and the need to further develop the leadership skills of the pharmacy support workforce.

To further add to the knowledge on the pharmacy technician, an international survey (**chapter 3**) was performed. This study provides an overview of the global variety of the scope, roles, supervision, education and legal framework of the pharmacy technician and other pharmacy support workforce cadres. The survey documents a large variety in basically all evaluated topics, e.g. responsibilities (from a focus on supply to the delivery of extended pharmaceutical patient care), supervision requirements (from complete and total supervision to independent practice), education systems (from on-the-job training to 4-year diploma programs) and supportive legislation for pharmacy support workforce cadres (absent as well as highly regulated through e.g. registration obligations). It taught the authors that a more detailed understanding of specific country practice settings is required when optimizing the use of pharmacy support workforce cadres, within the local setting.

Therefore, an empirical study was set up in the Dutch setting (**chapter 4**). This qualitative study provided insight into the knowledge, skills and attitudes required to perform as a pharmacy technician, based on the experiences and opinions of stakeholders from the Dutch pharmaceutical field. Focus group interviews with pharmacy technicians and pharmacists and a Delphi panel formed by various pharmaceutical stakeholders were used to build and validate a competency framework for the pharmacy technician profession to inform policy, practice and the design of pharmacy technician education. The results showed a competency framework comprising six domains: Communication in patient care, Interdisciplinary collaboration, Pharmaceutical expertise, Organization of care practice, Collaborative

leadership and Personal development. These findings benefit curriculum development for entry-to-practice training and support further professional career development for pharmacy technicians. They can also further the understanding of this evolving profession of the pharmacy technician within pharmaceutical care.

The focus group discussions and conversations between the members of the Delphi panel resulted in rich and elaborate data, since the participants took much effort to pinpoint certain definitions in the framework (e.g. the meaning of hierarchy and leadership in pharmacy practice). Thus, the research team decided to further explore these findings in practice by interviewing pharmacy technicians and two co-workers on the influencing factors on role development in existing pharmacy practice (**chapter 5**).

Analysis of the interviews yielded five interrelated themes that influenced the development and implementation of the pharmacy technician role in community and hospital pharmacies. Two of them were at a more contextual level: (a) experiencing a lack of vision on the added value of the new role within the field of pharmacy and (b) learning climate. The other three were related to personal interactions between staff members: (c) role expectations and organisational fit, (d) personal traits of pharmacy technicians and (e) support of pharmacy technicians through task delegation and role enhancement. The authors concluded that the development and implementation of the pharmacy technician role is a slow and complicated process. A detailed plan for addressing and remediating the five identified themes is important to advance pharmacy practice and promote role development of pharmacy technicians.

## **2. How our findings connect to literature**

This part of the general discussion will reflect upon the findings in this thesis considering recent literature on other advanced practice professionals in health care. This horizontal literature comparison was chosen since the pharmacy technician relates to the advanced practitioners on more than one level and because looking at role development with a broad view, by using other professions that are also struggling with the formation of a recognizable and accepted professional identity, will add to the interpretation and possible generalizability of the data of this thesis.<sup>1</sup>

In the next three paragraphs the definition and recognizability of those advanced practice professionals will be discussed, the reasons of existence of the pharmacy technician with other professions will be compared and

contrasted and this section ends with an discussion of the influencing factors that play a part in the role development for these professions.

## 2.1 Definition and recognizability

In this first literature paragraph the defining and recognition of advanced practice professionals will be discussed. The survey data (**chapter 3**) clearly showed the international myriad of names used to define the pharmacy technician, e.g. licenced OTC seller, pharmakonomist, health assistant, etc. However, the profession of pharmacy technicians is not the only one with an extended nomenclature. When the newly added healthcare professions are all taken together, multiple labels are used to describe them (e.g. allied health professionals, advanced clinical practitioners.<sup>2-4</sup> To add to the naming confusion, the individual professions are also labelled in multiple ways. Physician assistants can be physician associates and nurse practitioners can be labelled as advanced practice nurse, nurse consultant, clinical nurse specialist, etc.<sup>4-7</sup> This (local) diversity in labels and titles is the first indication of a potential issue with the role development of these new professions. The diversity in definition not only affects the branding and the worldwide recognition of a profession, but also the interpretation of international research data.

With regards to the recognition of a pharmacy technician and assigned tasks, roles and responsibilities, the scoping review and survey data (**chapter 2 and 3**) show that a pharmacy technician clearly is not the same professional in different contexts. When comparing this data to the literature, it seems the pharmacy technician is not the only new addition to healthcare professions that is hard to define. The observed diversity and ambiguity with regards to the nomenclature for advanced practice professionals, also features in the various descriptions of their roles, task descriptions and scopes of practice.<sup>2,3</sup> This seems to be the second indication of the issue with the role development. Since a clear definition and take on roles, responsibilities and added value to practice are all important elements in defining a profession, it might be hard to validate, firmly establish and integrate those new professions within the healthcare system.

In addition to the current diversity in definition and role development, it is also important to realise that these new professions, such as the pharmacy technician, are still evolving in practice, over time. This process is probably under the influence of local and contextual (and not always obvious) effects. By doing so, there is the possibility of moving away from visions and

definitions drawn up at the initial design of the profession and recorded in documents like educational blueprints and curriculum end terms. In realizing that clear, uniform definition and task descriptions are absent or still under construction, combined with the fact that the evolution of these new professions is strongly influenced by day-to-day practice, one could wonder how this influences professional identity development and the setup of educational programs. If you partake in a recently established curriculum, whether as teacher or as student, what are you training and being educated for? And how should we consider the effect the local context has on the evolving profession? Different professions have pursued this in a different manner, e.g. holding national consensus meetings.<sup>8</sup> In addition, the development of a competence framework seems a generally accepted and applied approach to defining a profession and to clarify a scope of practice.<sup>9</sup>

## **2.2 Reasons of existence**

This second literature paragraph compares and contrasts the reasons of existence of the pharmacy technician with other professions. When studying the literature on advanced practice professions for ‘the reason why’ that profession exists, large differences were observed when comparing these findings to that of the pharmacy technician. The main and very often mentioned reason for the development of advanced practitioners comes down to a workforce shortage (e.g. not enough doctors or dentists).<sup>10,11</sup> When looking within the field of pharmacy, this goes for developing countries, but not for countries with advanced economies. Here the bigger why pertains to the supporting of pharmacists, so they can perform at the top of their licence. The advanced practice literature also describes legal (e.g. legislation to enable extended scope and independent dental hygiene practice) and societal (e.g. maintaining and improving health service accessibility, and escalating healthcare spending) drivers, none of which is recognized as a driving force in the role development for the pharmacy technician.<sup>2,4,12-14</sup>

Interestingly, what lacks in literature documenting reasons of existence for the additional healthcare professionals, is the perspective of that professional itself. Even though it may seem obvious that all of these new professionals will have their own reasons for career advancement, these perspectives are underexposed in literature. The same goes for literature on pharmacy technicians, thus hindering the understanding and support of professional self-identity development. In **chapter 5** of this thesis, this omission was addressed and the data showed a certain ambivalence. Even

though pharmacy technicians were well able to provide the reason why pharmacy technicians existed (to support a pharmacist in achieving better pharmaceutical patient care), when asked why they themselves applied for and started the educational program, all answers referred to their own personal desire, a high intrinsic motivation to develop and gain more pharmaceutical knowledge. Furthermore, from the interview study (**chapter 5**) it became clear that pharmacists seem to struggle with ‘the reason why’ of having a pharmacy technician on the team. Often, no clear organisational perspective on the position and the tasks of a pharmacy technician in that specific pharmacy practice could be provided. Pharmacists explained that instead of purposefully aiming for a higher educated support staff member, they sometimes allowed for the education just as a gift to a proper functioning pharmacy assistant.

By taking a closer look at these findings relating to the reasons why the role of a pharmacy technician would be added to the team, an incongruity arises. The profession is designed to provide a supporting workforce for pharmacists. This calls for pharmacists willing to be supported and to delegate tasks, and pharmacy technicians having a clear perspective on their new place in the organisation. However, the individuals that together constitute the workforce of pharmacy technicians, choose this career advancement out of personal knowledge gains and pharmacists are not always ready for task shifting to occur. Based on the comparison of these findings with the literature on other advanced healthcare professionals, it seems that the field of pharmacy lacks certain contextual drivers (e.g. legal, societal) towards role development for pharmacy technicians. Without those, the process of implementing this role in existing practise is dependent on the individuals within that practice and therefore, the advancement of pharmacy practice and pharmaceutical patient care will remain a slow-paced process.

### **2.3 Influencing factors**

These reflections upon the findings in this thesis and recent literature on advanced practice professionals are ended by describing the influencing themes either limiting or facilitating role development.

The first limiting theme on role advancement for advanced practice professionals in health care can be described as boundary strategies, aimed at maintaining professional status and power. These strategies showed themselves on different levels in the data and resonated in the literature



on advanced practice professionals. First, they surfaced in the presence and extent of supervision. As was observed in the survey data, participants (mostly pharmacists) expressed an extensive desire for supervision of the tasks assigned to pharmacy technicians, with the least supervised competency areas all relating to the logistics of medication. This strongly connects to the ongoing discussion within the nurse practitioner profession, about being allowed to perform autonomously, but not independently.<sup>15</sup> Secondly, boundary strategies relate to the concept of collaborative leadership, which surfaced in the research project of the competence framework. Leadership rightfully earned its place in the framework, since consensus scored above the cut-off point of 70%. In addition, in the scoping review, in research on generic competences and in literature on advanced practice professionals in health care, leadership is labelled as an important element to succeed in professional role development.<sup>3,16</sup> However, the members of the Delphi panel engaged in a lively discussion, in an attempt to pinpoint the definition of leadership. These elaborate conversations were perceived by the authors as a sign of unease with the terminology of leadership relating to the pharmacy technician. In addition, the interview data showed only little evidence of pharmacy technicians who were expected by their pharmacists to actually lead the team. On the contrary, pharmacy technicians who tried to advance certain projects, were seen as pushy (by the team) and felt like they were stepping on (pharmacists) toes. Boundary strategies also play out on a different level in the team. Nurse practitioner literature describes this as nurses expressing feeling betrayed by nurse practitioners, who would seemingly abandon the original profession of nursing.<sup>10</sup> In the data on pharmacy technicians, feelings of betrayal by the pharmacy assistant were not observed by the researchers. What was observed, was a sense of being left behind, of not being valued, since diplomas were obviously of more value than numerous years of experience. The second limiting theme on role advancement that warrants attention, is the influence of faculty at the educational programmes of advanced practice professionals. Logically, at the start of a new program, all involved faculty will come from previously existing professions (doctors, dentists, pharmacists). However, not only can this composition of faculty have a negative steering influence on the curriculum (e.g. by adding content related to their own profession, roles and responsibilities), faculty also often serves as role models. But in this case, they serve as role models for an entirely different profession.<sup>9,17</sup> Combined with findings in physician associate literature

on how doctors strongly recommend them ‘to just take the next step and become a doctor’, one could argue that role development of advanced practice professionals is (unintentionally) hampered from the beginning, in the educational environment.<sup>13</sup> This phenomenon was also present in the early days of the Dutch educational program for pharmacy technician, where the composition of faculty was skewed towards pharmacists, since no pharmacy technicians were available. Nowadays, some pharmacy technicians have found their way towards taking on educational staff positions, thereby potentially functioning as role models for the students and influencing (from a pharmacy technicians’ point of view) the educational content, study assignments and workplace-based assessment of the program.

Fortunately, the interview data (**chapter 5**) and the literature also describes facilitating themes, of which three will be discussed. First, experiencing some form of mentorship made it easier for the novice professional to confidently transition towards the new role and become skilful in the required competences.<sup>2</sup> To be seen for the professional you are and will become, provides a sense of trust and support, helpful in developing your scope of practice in a new environment.<sup>13</sup> It is considered even more advantageous when this role of mentor is extended toward that of ambassador, since this person advocates for you and your role and often has the hierarchical position to allow for the necessary organisational (systems access, work protocols, etc.) or cultural changes (receptiveness to integrating new roles and professions in a team).<sup>3</sup> In the interview data, this was exemplified by a pharmacist describing the joint decisions, made with the pharmacy technicians, on their roles and duties. This was complemented by pharmacy technicians explaining how their pharmacist would introduce the pharmacy technicians in a group of medical specialists, with passion and urgency. Second, support from a wide variety of stakeholders (physicians, healthcare managers, junior doctors, nursing colleagues, etc.) who understand and are supportive of the role is considered to facilitate role development and effectively implementing a new healthcare role.<sup>2,5,18</sup> Being supportive can take on many forms, of which supplying the new professional with opportunities to grow, to show the newly acquired knowledge and skill, thus generating a budding confidence in his or her competency, is reflected in the interview data in **chapter 5**.

As a third facilitating theme, a strong sense of self is worth mentioning. In multiple professions it is described as supportive in the (sometimes) turbulent times of transitioning.<sup>19-21</sup> In literature on advanced practice

professionals, it can be recognized in different shapes, such as a pioneering spirit (in helping to develop and shape the role of nurse practitioners), in believing in one's self (due to previous professional work experience), in expressing strong ambitions in providing excellent patient care and having the capacity for self-reflection (to know ones' professional limits).<sup>5,20,21</sup> The facilitating impact of having a strong sense of self is also reflected in the empirical studies (**chapter 4 and 5**). Pharmacy technicians benefited from a strong sense of self, from having identified their internal motivator. It helped them go through three years of additional training, to speak up and advocate for themselves and their new role in the team, to be patient and most importantly, persevere in role development and push forward the profession in their individual practice.

### **3. Strengths & limitations**

This thesis aimed to obtain empirical insights in the multivariable topic of how the addition of the profession of the pharmacy technician to the pharmacy workforce was received in the field, and the subsequent role development that took place. By approaching this in a qualitative research manner the reader was provided with layered and in-depth data, thus adding to the body of knowledge regarding the tasks and responsibilities, and the related role development of this new profession. Also, the richness of the data generated subsequent research aims, thus resulting in a natural alignment of this thesis. Furthermore, because the primary researcher was based in the educational program of the Dutch pharmacy technician, the research interests and questions of this thesis were based on the educational practice and had a clear rationale.

An additional strength of this thesis is the composition of the research team. It consisted of researchers from different backgrounds (i.e., pharmaceutical and medical practice, (social) psychology and veterinary, medical and health professions education), bringing various expertise to the table and a distinct knowledge of performing qualitative research. One of the limitations of this thesis is the lack of involvement of patients. Based on the literature on other advanced healthcare professionals, in which the patient perspective has almost no place, it seems a common omission in current research. In this thesis, leaving these perspectives out resulted in data solely influenced by the pharmacy view. It would have been interesting to include the patient perspective. Even more so since the participants in the interview study openly wondered

if patients had a clear (if any, for that matter) perception of a pharmacy technician. These opinions augment the earlier experiences of the researchers in setting up patient participation in the focus groups for the competence framework study. Even after extensive communication and promotion, only two individuals were willing to participate. When asked about the composition and professions in their pharmacy practice team, none of them were able to identify the pharmacy technician or articulate specifics in differences in team members, required education and responsibilities.

Another limitation pertains to the data collection in the survey research project. The distribution of the survey and reaching the persons of interest was quite challenging. The International Pharmaceutical Federation (FIP) played a supportive role in this process, by distributing the survey to all national pharmacy organizations and representatives, affiliated to FIP. Despite their support and willingness to share their networks, it was challenging to identify, and thus directly reach out to, the appropriate participants in this international field. This may have been the cause for the relative low response rates. However, it was observed by the primary researcher (TK) that in the Dutch setting the survey eventually reached the envisioned participants, and this survey was aimed as a starting point to understand the international stance on and implementation of the profession of the pharmacy technician.

The third limitation that is addressed, relates to change and transition. Change can be defined as a point in time with a clear before and after, whereas transition represents the processes evoked within an individual, a team, a practice in response to that change, in this thesis: a pharmacy assistant graduating as a pharmacy technician.<sup>22,23</sup> The data collection is cross sectional, based on snapshots in time (current state of the literature on pharmacy technicians, survey on prevalent practices and experiences with this profession and a competence framework based on day-to-day tasks and responsibilities). Thus, one could argue the data collection was addressed as if the development of the profession of the pharmacy technician was merely a change, a point in time with a before and after. The interview study (**chapter 5**) addressed this by asking the participants to look back in time and recall anecdotes, examples, decision making processes, all illustrating over time how the shaping of their role and profession in that particular practice took place.

## 4. Practical implications

In order to further develop the profession of the pharmacy technician, in this section of the general discussion, the practical implications that result from this thesis are presented. The aim of these practical implications is the trifold: first, enhancing the familiarity with and understanding of the competency framework for pharmacy technicians and the resulting roles and responsibilities, by pharmacists, pharmacy technicians and other stakeholders in the pharmaceutical field. Increased knowledge of these roles will help the field recognize what the scope of practice is for a pharmacy technician, and where that meets and supports that of a pharmacist. Second, providing for road mapping of the currently existing possibilities for task delegation from a pharmacist to a pharmacy technician. This needs to be accompanied by a time frame in which full supervision by the pharmacist of these delegated tasks can give way to autonomous performance by the pharmacy technician. This will not only positively influence the role development for pharmacy technicians but will also free up time for pharmacists to expand their clinical practice roles. Third, elaborating on different ways of ongoing support for both pharmacist and pharmacy technician in achieving these two aims in daily practice.

While, fortunately, there is a growing conversation in research literature on role development and professional identity formation for advanced healthcare professionals, not much attention is paid to applying the practical implications of that research in educational programs (except for the colleagues in dental healthcare).<sup>24,25</sup> Therefore, the educational setting was chosen as background to present six practical implications, summarized in Table 1.

*Table 1. Practical implications in education.*

Who	Focus on	When
Pharmacists & pharmacy technicians	1. Future role of pharmacy technician 2. Shared leadership; change	During education During education
Pharmacists	3. Peer groups	During education & post-graduation
Pharmacy technicians	4. Role modelling and peer groups 5. Professional identity formation	During education & post-graduation During education
The pharmacy team	6. Interprofessional education	During education and lifelong learning programs

First of all, the authors would strongly recommend increasing the involvement of pharmacists in the educational set up of the pharmacy technician program. Pharmacists and their pharmacy technician in training should meet up during the program and for instance discuss the competence framework for pharmacy technicians. What domains would be of use, have a great fit in the current pharmacy practice, in which in a few years, a new profession can add to providing pharmaceutical patient care? Based on the framework, and the myriad of examples of tasks, roles and responsibilities as described in literature, both the pharmacist and the pharmacy technician can discuss and form an understanding of the pharmacy technician role. This joint exploring of implementing the pharmacy technician role will provide both professionals with clarity on where their tasks and responsibilities meet and enhance each other.

Second, and as a follow up on the first recommendation, both pharmacist and pharmacy technician should be involved in a leadership program, in which they familiarize themselves with the possibilities of shared leadership. They will benefit from advanced leadership skills when implementing the profession of pharmacy technician and therefore applying changes in the team, and on the organisational and system level. Furthermore, the findings suggested a certain unease of pharmacists in relation to 'pharmacy technicians and leadership'. Conversing on what leadership may constitute for the pharmacy technician, how the pharmacist would benefit and what it would look like in daily practice, will help all team members in acknowledging and complying with the new order of things.

Third, since the pharmacists who participated in the focus groups all expressed their enthusiasm for the possibility of exchanging experiences with having a pharmacy technician on the team, it is proposed that those encounters are facilitated within the curriculum. Providing for peer groups of pharmacists with a pharmacy technician in training, will provide them with information and tools on how to, together, decide on the position and responsibilities of the soon to graduate pharmacy technician in their individual pharmacy practice. These sessions will, over time and after graduation of the technician, hopefully progress from 'what do you allow you pharmacy technician to do under supervision?', to 'how do the two of you develop the role together?'

Fourth, for the pharmacy technicians it is proposed that more pharmacy technician alumni as role models will be present in the educational set up. It matters who you see in your period of training, with who you engage in

ongoing conversations on the profession and who the ones in charge are. Encountering a role model will, whether consciously or not, support the pharmacy technician in moulding, building and creating her own professional self. Subsequently, those role models present in the educational program should be followed up by peer support groups after graduation, in order to continue to learn from and share with peers who are all experiencing their own process of professional role development. Besides the exchanging of successes and setbacks each individual pharmacy technician went through, the competence framework can provide input for conversations on how to create a responsive environment for a new profession in existing pharmacy practice. Discussing the different domains of the framework and how they could shape the role of the pharmacy technician in her individual practice, might fuel a subsequent conversation between the pharmacist and the pharmacy technicians.

Fifth, from role modelling, it is only a small step to professional identity formation and role development. Addressing these topics is important since restricted, hampered or incomplete professional identity formation is associated with crisis in confidence, imposter syndrome, drop out (from educational programs), retention of workforce (people changing jobs), career failure and workplace non-effectiveness, to name but a few.<sup>2,5,9,26</sup> The learning and development that supports and results in transitioning into a new profession, is often not made explicit in education.<sup>27</sup> The authors would therefore advocate to address professional identity formation in the education programs. Making it a significant and recognizable part of the educational program might contribute to the prevention of the negative consequences of restricted professional identity formation. Pharmacy technicians should be encouraged to talk about what defines them as a pharmacy technician, if and how they experience role clarity, what they see as their tasks and responsibilities in pharmaceutical patient care and inform them on the known limiting and facilitating themes for role development. Due to the practical setup of the educational programme, addressing these topics could be added to curriculum elements such as career guidance conversations and workplace-based learning. And this should be done in advance, before graduation, because professional identity formation does not just happen overnight.

Our sixth, and last practical implication relates to interprofessional education. The delivery of consistent and effective pharmaceutical patient care requires a high functioning and collaborative team, with team members

that are aware of each other's scope of practice, competencies and responsibilities.<sup>27,28</sup> Individual staff members within a pharmacy team should be knowledgeable on how their expertise complements that of the others and what the professional boundaries are of each role. This getting to know direct colleagues with their accompanying tasks and responsibilities, and by proxy yourself as a professional, supports the learning process needed to become a professional team player. This will help integrating the different pharmacy professions within a well collaborating team, and as a result patients benefit from pharmaceutical patient care based on a team performance. However, the various team members within a pharmacy, whether it is a public, hospital or outpatient pharmacy, will meet for the first time, on the job, after graduation. Therefore, in order to expedite this process of understanding roles, tasks and collegial relationships, beneficial to collaborative care, the importance of interprofessional education needs to be stressed. This teaching of teamwork should address the individual added values to the interprofessional team, make clear what can be expected from the different professionals and what not (role-boundaries), and aim to better integrate the different professions within a pharmacy team. This teaching should not only be a part of the different educational programs, but also form a part of lifelong learning programs, to address team-based delivery of pharmaceutical care in existing practice.

That said, it is important to acknowledge the cautions that need to be taken into account with interprofessional education, as eloquently voiced by Paradis et al.<sup>29</sup> The authors would like to address the warning that seems most relevant to the design of interprofessional education. Often, the rationale behind adopting interprofessional education in educational programs is the addressing (or preferably: solving) of elements such as interprofessional power, hierarchies, conflict and the resulting ramifications. When it comes to these required systems changes, Paradis et al. urge to not consider learners as the ones who will save the day and not to regard interprofessional education as a magic potion. More than just the tool of interprofessional education is needed to make changes in how care is delivered. Nevertheless, if interprofessional education is applied, educators should not shy away from engaging with the topics of power and conflict in the setup of the curriculum. We need to educate our students on the existence of these topics that are hindering collaborative patientcare, since power structures and conflict undeniably shape healthcare systems and health profession interactions in daily life.<sup>29,30</sup>



## 5. Future research

The findings presented in this thesis, combined with the practical implications allow for multiple possibilities of future research. Based on one of the described limitations, the first proposed direction relates to role development regarded as a transitional process. Longitudinal research methodologies such as observations, will depict how, over a longer period of time, the role of a pharmacy technician is implemented and takes shape. In addition to a longitudinal set up of data collection to study role development, the lens of organisational socialisation theory could be used.<sup>31</sup> This relates to how new employees move from being organizational outsiders to becoming organizational insiders. It depicts the necessary learning of knowledge, skills, and behaviours needed to become effective organizational members.<sup>32</sup> In this manner, even more insights in processes that influence role development of the pharmacy technician might be collected.

Also, as of yet, the majority of literature on pharmacy technicians has a focus on the 'what' of this profession, reporting examples of tasks they fulfil and if these tasks are performed in a safe and effective manner.<sup>33</sup> This thesis took a first step in clarifying the 'how' of a pharmacy technician, by studying how these professionals work in practice. Can they do what they are trained for? Can they fulfil the bigger why? In setting a course for future research on the pharmacy technician profession, these questions can easily be combined. We would like to understand the mechanisms behind role development in relation to outcome measures, e.g. safe and effective pharmaceutical patient care. Where are pharmacy technicians implemented well (and what constitutes 'well?'), and how is this instrumental to the advancement of pharmaceutical practice?<sup>34</sup>

Lastly, the topic of professional identity development clearly surfaced in the practical implications. Combined with the fact that this topic also appears outside of this thesis, in literature on pharmacists struggling with positions and tasks within healthcare, professional identity development can be considered as a future research topic. In some form or other, the increasing research on pharmacists and stress and burnout, pharmacists and changing identity and pharmacists in transition, relates to hampered professional identity formation.<sup>35-45</sup> These findings, connected to the data, illustrate that if pharmacists grapple with their professional role, with being recognized by other healthcare providers and patients for the expertise they bring to the table, then the addition of an extra profession, that of the pharmacy technician, will cause even more professional friction. Therefore, the au-

thors feel that the entire pharmacy profession, not just the pharmacy technicians, can benefit from research on professional identity development. To round off this paragraph on future research, the authors would like to express that what this thesis showed us, is that there is still a vast and unexplored landscape regarding the profession of the pharmacy technician. Future exploratory research, as described above, will not only generate more knowledge and understanding, but it will also make a contribution toward the acceptance of the profession of a pharmacy technician and generate insights in how to intervene if implementation is desired but hampered. And, since the findings in this thesis relate to research on other advanced practitioner professions in a multitude of ways, not only pharmacy technicians will benefit from a closer look, but that future research will also generate knowledge transferable to other advanced practitioner professions.

## 6. Concluding remarks

At the end of this thesis, I would like to stress the importance of expanding research on pharmacy education. At this moment in time, my thesis is accompanied by only a handful of other dissertations worldwide on the how and what of educating the pharmacy team. As teachers, we should make use of educational research to inform how we teach, in the same manner as how we apply outcomes of discipline based research to inform what we teach. In order to do so, we need more pharmacy education focused research.

Secondly, we educate and train our future pharmacy team in well described curricula and programs. However, learning does not stop upon entering practice. Our new professionals will now engage in the process of lifelong learning. In society, education for professionals is a current and evolving topic of interest and pharmacy education research should connect with this topic to inform and support the ongoing learning process of the pharmacy team.

Furthermore, the Dutch field of pharmacy recognizes new and emerging professions that would benefit from educational research (i.e. pharmacy technician, accredited community pharmacist and non-prescribing pharmacist). In addition, the field itself is in an ongoing transition. Professional identity development would therefore be one of the featured research topics, in this way providing a bridge between becoming and being a pharmacy health professional.

Thus, it would benefit the (inter)national field of pharmacy to create its own research agenda with regards to training and educating professionals who provide excellent pharmaceutical patient care.

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