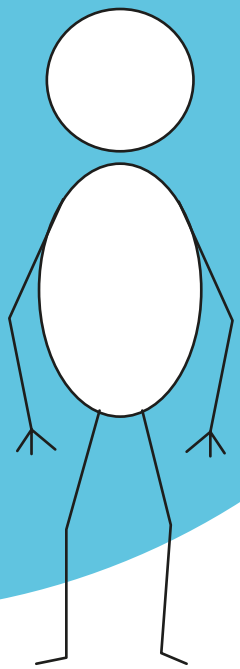
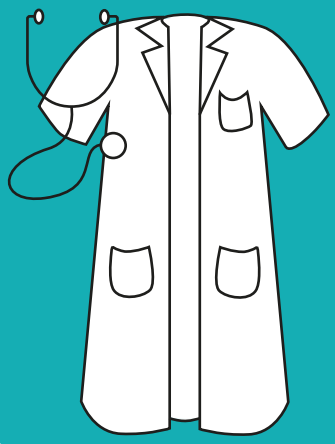
Doctor In Development

Designing education enabling medical students to include their personal identity in the process of becoming a professional





Master thesis
Deanne Spek

Doctor In Development

Designing education enabling medical students to include their personal identity in the process of becoming a professional

Master Thesis

Deanne Spek

March 23, 2023

Integrated Product Design
Industrial Design Engineering
Delft University of Technology

In Collaboration with

University Medical Centre Utrecht

Supervisory Team

Chair	Dr. J.J. Kraal (Jos)
Mentor	Dr. ir. N.J.H. Vegt (Niko)
Company mentor	Dr M.J.J. Ermers (Marieke)

Executive Summary

The national and international healthcare systems are in a transition. The healthcare problems of the future ask for doctors who can deal with complex challenges, connect to their patients, support societal health, have skills for lifelong learning, and take care of themselves (Lemmens et al., 2019; Nooteboom et al., 2020; World Health Organization, 2022). Both international researchers and national institutions explain that supporting medical students in their process of Professional Identity Formation (PIF) prepares them for this future (Cruess et al., 2014; Jarvis-Selinger et al., 2012; van De Pol et al., 2020). PIF is a process of finding the right balance between the internalization of the values, norms and behaviours of the profession (professional side), and the development of a personal style and purpose (personal side). While the professional side is already part of many medical curricula, including the curriculum of University Medical Centre Utrecht (UMCU), attention to the personal side is lacking. Therefore, this project aims to support medical students in exploring their personal side of PIF.

An iterative approach with extensive involvement of students, teachers, medical professionals and educational experts, has led to the creation of the educational module AIO (Arts In Ontwikkeling/Doctor In Development). AIO is divided into four phases: hook the students for PIF education, create a safe atmosphere to open up, allow students to explore themselves, and support them in evaluating what their self-insights mean for their role as residents/medical professionals. These phases form the basis of the three-year course and are repeated within the exploration phase as well. The exploration phase consists of seven cycles of start workshop – challenge – end workshop. In the start workshop students are hooked and explore together by sharing stories, a variety of challenges to choose from enables them to further reflect on themselves, the end workshop allows sharing of the insights and supports them in using the self-insights to formulate a concrete takeaway. Most workshops are facilitated by older students instead of teachers, since they create a safe atmosphere to open up and can provide practical tips based on their experiences.

A pilot study showed that peer facilitators indeed play a key role in the education. Furthermore, the active and creative exercises were seen as extremely supportive in the exploration and sharing of experiences. Besides being desired by students, AIO addresses several requirements for medical education and is thereby viable for UMCU. The fact that AIO is a modular course, requires a limited amount of teachers, and has been designed for the organizational structure of UMCU makes it also feasible.

Besides supporting UMCU in integrating PIF into their new curriculum, the research and design of this graduation project can be used as inspiration for other (inter)national medical universities. Future research could investigate the long-term effects of the design as PIF is a longitudinal process. Still, the pilot showed that the designed education already addresses unmet needs, supports the resilience of residents and allows students to discuss the challenges the future of healthcare brings.

Preface

For my graduation, I was looking for a project in which I could help others by combining my expertise in mental health and design. Well, I definitely got one. With my graduation I could combine my experiences in teaching, mental health and design to help medical students explore and develop themselves as persons and as professionals. As this project would never have come this far without the help, experience and knowledge of others, I first want to thank all those who helped me.

First of all, a big thanks to my supervisory team. Marieke Ermers, Niko Vegt and Jos Kraal supported me in the ups and downs of the project, in times of good ideas and in times of writing difficulties. Thank you for helping me tackle the complexity of this project and of writing a thesis.

Thanks to all the staff supporting me in the development of the design, via co-creation, interviews, knowledge and many tips. Especially thanks to Megan, Diane, Elsemarijn, Marieke and Zita for always helping me attack the obstacles in my journey of designing for the medical-educational environment.

A big thanks to all the students to co-created, tested and evaluated parts of the idea. Without your input, the idea would not have gained such richness and deepness, it would not have touched the core problem as it does now. I would specifically like to thank Silvester, for fully supporting my idea and taking it further in the student population, and Jip, Thijmen, Maaike and Solaiman for being more than a co-creator. You showed who the person behind the medical student is and can be, and you brought me in contact with others. And of course, a very big thanks to the students who were facilitators in the pilot.

Thank you Beyza, Djenghiz, Kennan, Silvester, Lina, Michelle, Hilal, Ruben, Annika, and Juliette for spending your time and energy on the evaluation and further development of the design.

Finally, I want to thank my family and friends. I know it sounds cliché but without my parents, sister and best friends I would not have made it. Without them, there maybe would have been a project, but the me would have been lost. Thank you Rose for the many walks, tips and problem-reframing talks. Lonneke, my dear sister and first-year UMCU student, sorry for the many questions but thank you for all the answers (and for the bike in Utrecht when the trams did not drive). Thanks mom and dad for the emotional, financial and practical support that only you can give in such a warm manner.

Dear reader, I hope you see this is not just a project done by me. This is a project in which the designers, educators and medical professionals came together to support medical students in exploring themselves and becoming the professionals they want to and best can be. Not only for them, but also for their patients, colleagues and the healthcare system in general. Enjoy reading!

Deanne

Table of Content

List of Terms 5

1. Project Introduction 7
1.1 A Healthcare System in Transition 9
1.2 PIF in Short 11
1.3 Project Scope and Aim 12
1.4 Design Approach 13

Part A: Research

2. Professional Identity Formation 17
2.1 Approach 19
2.2 PIF in the Medical Context 20
2.3 Why Support PIF in Medical Students 24
2.4 Factors Influencing PIF 25
2.5 PIF Assessment 26
2.6 Challenges in Medical PIF Education 27
2.7 Takeaways 28

3. PIF and Current UMCU Education 29
3.1 Approach 31
3.2 Medicine in The Netherlands 32
3.3 The UMCU Curriculum 33
3.4 Challenges in UMCU PIF Education 37
3.5 Takeaways 38

4. Stakeholders' Desires for PIF Education in UMCU 39
4.1 Approach 41
4.2 Findings 43
4.3 Takeaways 46

5. Synthesis 47
5.1 Approach 49
5.2 Synthesis of Insights 50
5.3 Synthesis of PIF Challenges and Desires 51

6. Design Goal 57
6.1 Approach 59
6.2 Selection of Directions 60
6.3 Design Goal 61
6.4 Storytelling and Identity 63

Part B: Conceptualization

7. Ideation 67
- 7.1 Approach 69
- 7.2 Ideation Steps 70
- 7.3 Concepts 74

8. Selection 77
- 8.1 Approach 79
- 8.2 Weighted Objectives 79
- 8.3 Stakeholders' Opinions 80
- 8.4 Combination 82

9. Final Design Proposal 83
- 9.1 Approach 85
- 9.2 Module Structure 85
- 9.3 Introduction Class 88
- 9.4 Workshops and Challenges 89
- 9.5 Wrap-Up Cycle 95
- 9.6 Peer Facilitation 97
- 9.7 Design of Materials 99
- 9.8 Assessment 100

Part C: Evaluation

10. Evaluation 103
- 10.1 Approach 105
- 10.2 Pilot Findings 107
- 10.3 Wishes and Requirements 112
- 10.4 Evaluation with the Raamplan 2020 113
- 10.5 Suggestions for Future Improvements 114

11. Discussion and Conclusion 117
- 11.1 Discussion 119
- 11.2 Next Steps 121
- 11.3 Conclusion 123
- 11.4 Reflection 123

References 125

List of Terms

This list does not contain all terms and abbreviations used in this graduation report, but only the ones used throughout multiple chapters to help the reader.

Term in Thesis	Dutch Term	Description	More Information in Chapter
AIOS	Arts In Opleiding tot Specialist	Doctor, i.e. a person who finished the MSc medicine, who is working in a certain specialism and educated to become that type of specialist.	3.2
ANIOS	Arts Niet In Opleiding tot Specialist	Doctor, i.e. a person who finished the MSc medicine, and who is working in a certain specialism just to gain experience.	3.2
AKO	Arts Klinisch Onderwijs	ANIOS who also does the educational tasks for that specialism.	3.2
Blok	Blok - Groen/ Rood/ Blauw/ Geel/ Paars	Course about a collection of medical specialities before students do their residency in those specialities.	3.3
BSc	Bachelor of Science	Bachelor of Science, which takes three years for the study medicine in The Netherlands.	3.2
Doctor	Basisarts	Person who finished the MSc medicine.	3.2
LINK	Longitudinale INtegratie in de Kliniek - Groen/ Rood/ Blauw/ Geel/ Paars	Name of the course in which residency in a collection of medical specialities takes place, specialities are taught in the Blok before.	3.3
MSc	Master of Science	Master of Science, which takes three years for the study medicine in The Netherlands.	3.2
NM	Narratiege Geneeskunde	Using literature and the arts to reflect, learn, and create empathic understanding, A group of staff members focuses on integrating this into the curriculum.	3.3
PI	Professionele Identiteit	Professional Identity – one's personal identity in the professional context.	2
PIF	Professionele Identiteitsvorming	Professional Identity Formation – the process of forming one's professional identity by integrating professional expectations and personal identity.	2
PPP	Patiënt Perspectief Programma	Patient Perspective Program – abbreviation used for track in UMCU curriculum.	3.3
Resident	Coassistent	Medical student in his/her master's participating in a certain medical speciality.	3.3
Residency	Coschappen	The period of medical education in which medical students participate in the clinical environment.	3.3
Return-day	Terugkomdag	Day during residency when students come back to UMCU to reflect and learn more about the topics they are currently doing their residency in.	3.3

Term in Thesis	Dutch Term	Description	More Information in Chapter
Schakeljaar	Schakeljaar	Third year of MSc medicine which supports the transition between student and doctor.	3.2
(medical) specialist	(medisch) specialist	Person who has finished a specialization.	3.2
SUMMA	Selective Utrecht Medical MAsters	Selective Utrecht Medical Masters – special MSc in UMCU for students who have not done a BSc in medicine but another (bio) medical-related BSc but still want to become a doctor.	3.2
Teacher	Docent	Every person who supports students in their learning process, including tutors, supervisors, coaches, A(N)IOS, medical specialists, experts-by-experience and all others who bring knowledge or skills to the students. In medical education, classes are not given by someone without a teacher's degree.	
UMCU	Universitair Medisch Centrum Utrecht	University Medical Centre Utrecht	1
UU	Universiteit Utrecht	University of Utrecht	1
W&R	Wensen en Eisen	Wishes and Requirements	5

1 Project Introduction

This first chapter starts by explaining the transition happening in healthcare, as this transition requires the healthcare and education system to pay attention to Professional Identity Formation (PIF). Then, the concept of PIF will be briefly explained to continue with the introduction of the client and thereby the scope of this project. Finally, the main problem addressed in this project and the approach taken are discussed.

Chapter Content

1.1 A Healthcare System in Transition
1.2 PIF in Short
1.3 Project Scope and Aim
1.4 Design Approach

“You may want to investigate all sorts of things. In the body and in the brain. Up to a PhD or professor. But if you don’t dare to put yourself as the main question, your own project, your whole master thesis of your own life, then everything you do outside of that is a facade and I think you will end up unhappy.”

Expert by experience

1.1
A Healthcare System in Transition

The national and international healthcare systems are in a transition. The healthcare problems of today and the future ask for doctors with different capacities, and citizens are expecting a more humanised approach from their healthcare professionals (Lemmens et al., 2019; Nooteboom et al., 2020; World Health Organization, 2022). We do not visit the doctor with one specific question anymore, but with a list of complaints and information already looked up. Besides, we not only desire the doctor to be the professional in the white coat, but also someone who really sees and understands us, and with whom we can connect. However, this doctor is also working in a system where the pressure is rising, where costs have to be reduced, and where prestige and hierarchy heavily influence the working culture.

The need for change is recognised by medical institutions providing the frameworks and guidelines for medical education (Frank et al., 2015; van De Pol et al., 2020). However, changing big systems such as healthcare and education is difficult and goes slowly. While technological and measurable changes are implemented, the support for 'soft skills' and a cultural shift stay behind. The overarching, and according to some researchers core aspect to help medical students prepare for their future, seems to be supporting the process of *Professional Identity Formation (PIF)*. Healthcare professionals with a strong or mature *Professional Identity (PI)* know who they are, how they have been formed, and who they want to be (as a medical professional). They have developed their own style and authenticity as a doctor, and know what they need and desire to do their job well. Before diving into PIF, I will first briefly explain more about the transition which is happing, the problems that are arising, and why these are asking for PIF to be supported.

PIF Arising from a Transition in How We Approach Mental Health

This graduation project started with the question: Which skills and/or knowledge should be added or elaborated upon in the Dutch medicine curriculum to prepare a generation of doctors ready to address the mental health problems of the future? The focus on mental health came from the problem owner, the psychiatry department of University Medical Centre Utrecht (UMCU). The societal view of good mental healthcare is broadening and citizens are expecting a more humane approach from professionals (Fusar-Poli et al., 2020; Lemmens et al., 2019; Nooteboom et al., 2020). In a pre-study, it was investigated what this transition in mental healthcare means for medical education in The Netherlands. Literature and interviewees indicated that for the future it is desired that a doctor is more than a professional with medical knowledge and the patient is more than his/her illness. They state a doctor should see the patient as a person as well as be a person him-/herself to create an authentic connection. Besides, it was found that the future medical professional requires skills in complexity thinking and societal structures since literature and interviewees indicated that health and illness should not be seen as two opposites but as variations on a spectrum for which the whole society has a collective responsibility. The skills literature and interviewees deemed important for

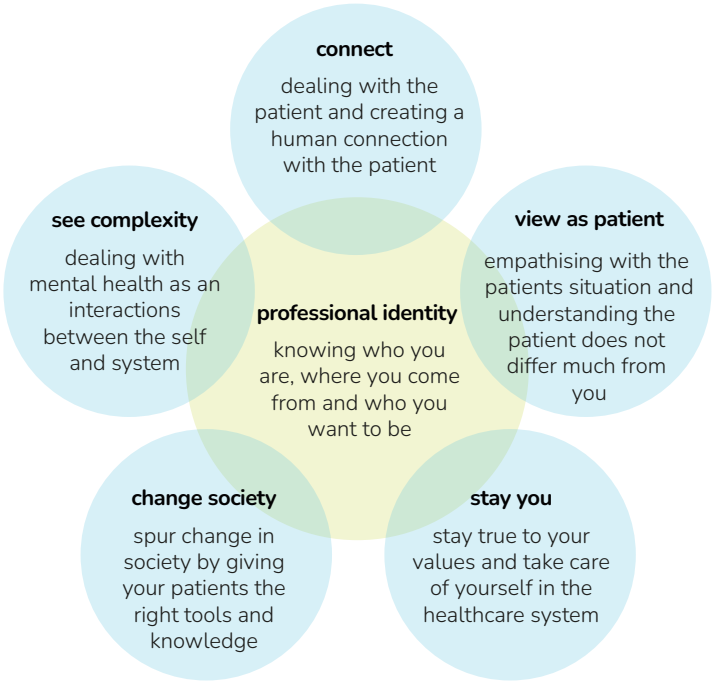


Figure 1.1: Professional Identity as the overarching topic

a future medical professional were clustered in five themes. All themes are linked to knowing who you are, who you want to be, and what you want to mean as a medical professional. In other words, they require doctors with a strong PI. The five themes and their link to having PI are shown in Figure 1.1 and explained below:

1. **Connect**: knowing who you are and want to be as a doctor helps in creating a more human and intimate connection with the patient. Patients as for an authentic instead of an anonymised doctor in the white coat.
2. **View as patient**: it is easier to see the patient as an equal human being and take their perspective when you are aware of your own perspective.
3. **Stay you**: having a clear professional identity helps taking care of yourself and keep enjoying your job by staying close to your values within the system you get to work.
4. **Change societ**y: knowing what you want to add as a doctor helps in developing a moral compass helpful in addressing societal problems as a health professional.
5. **See complexit**y: understanding the complexity of your own story allows for better understanding and dealing with the complexity and existential aspects of patients' stories.

In line with our findings, Glas et al. (2018) describe the mental healthcare transition as a chance to redefine the role identity has in psychiatry. Previously a strong PI was considered to be creating distance between the personal and professional life, and distance between the doctor and patient (Glas et al., 2018; Weingarten, 2000). Research now indicates that the future healthcare system and society ask for doctors (not only those working in mental healthcare) with an integrated, humanistic and authentic PI (Chandran et al., 2019; Glas et al., 2018; Lawson et al., 2017). Becoming a medical professional in the future healthcare system asks for adaptation, and being the doctor of patients asks for authenticity (Chandran et al., 2019; Cruess et al., 2014; Fergus et al., 2018). We should move not only to person-centred care in which the patient is seen first and foremost as a person, but also focus on the healthcare provider as being a person and thereby add person-*given*.

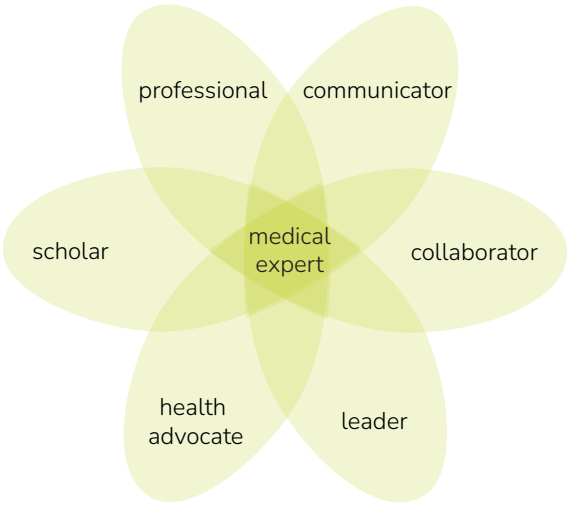


Figure 1.2: The seven roles of the CanMEDS model

PIF for Every Medical Student

In healthcare education the necessity for supporting PIF of medical students arising as well. Several researchers indicate that students currently lose their personal selves and feel forced to conform to a standard framework (Fergus et al., 2018; Park & Hong, 2022; Shapiro et al., 2021). Medicine education has been 'accused' of dehumanizing students (Park & Hong, 2022), blunting sensitivity to moral dilemmas (Kalet et al., 2017) and causing ethical erosion (Liao & Wang, 2020). All these authors suggest addressing PIF in medical education as a solution to the problem. Where previously the focus was on medical knowledge, more and more research are indicating PIF should be the main goal (Cruess et al., 2014; Goldie, 2012; Holden et al., 2012; Rabow et al., 2010). This is also recognised by students themselves:

> *In the past, the doctor who knows every disease and treatment was judged as a competent doctor. Now, you can just look things up. So, I think it's not far until choosing the doctor who has a good personality rather than skills.*
>
> Student from interviews of Park and Hong (2022, p. 6)

In line with these findings in research, recent changes in frameworks for medical education abroad and in The Netherlands ask educational institutions to support the PIF process of their students. Internationally, the CanMEDS framework is a well-known foundation for medical education and it has been revised in 2015. The CanMEDS framework describes six roles a competent physician should be able to integrate into the seventh and final role of a Medical Expert (Frank et al., 2015), see Figure 1.2 and Appendix 1. This framework is also the basis for the latest Raamplan (created in 2020), which provides specific competencies the Dutch doctor of 2025 and thereby the Dutch BSc and MSc medicine students should have (van De Pol et al., 2020). The Raamplan 2020 states that due to the growing complexity of healthcare there should be more attention to competencies for a lifelong learning and personal and professional development. Besides, the challenges in the healthcare system ask for a wider variety in both the professions and personality of the medical graduate (van De Pol et al., 2020).

Many of the specific competencies described in the Raamplan point towards PIF as well, a few examples are stated in Appendix 1. So, an increased focus in medical curricula on the personal and professional development is not only desired from researchers, but even mandatory for the Dutch medical education. Section 1.3 focuses on the situation in the University Medical Centre Utrecht (UMCU), as they are client of this project. However, the PIF process will be briefly explained first to gain a better understanding of what is asked for.

> *As a professional, you must have learned to make choices, to understand how to use your own values to influence your environment, deal with the high demands placed on you as a doctor, while maintaining a work-life balance maintain. Personal leadership development is therefore given more prominence in the Raamplan 2020.*
>
> van De Pol et al., (2020, p. 53)

1.2
PIF in Short

As will be further explained in Chapter 2, Professional Identity Formation (PIF) in the medical context exists of two aspects (see Figure 1.3):

1. A **professional** aspect: the internalization of the values, norms and behaviours of the profession, committing to the philosophy of the profession.
2. A **personal** aspect: understanding who you are and bringing a part of your uniqueness to the profession to create a personal style.

The integration of these two aspects starts with an exploration of different identities and doctor styles. For such exploration, interactions with the self, others (patients, team members, supervisors) and the healthcare/ education system are important. Some interactions and experiences may strengthen the identity one has formed, others require adaptation or even deconstruction. For example, interactions with the reality of the healthcare system cause medicine students to reconstruct their idea of the profession and thereby their PI. Besides, receiving feedback and sharing clinical experiences influence one's personal view of what type of doctor one wants to be. Seeing a supervisor deal with the patient can help the student determine if (s)he would like to approach the situation in the same way.

By addressing the questions 'Who am I?', 'How have I become this way?', and 'Who do I want to be?' PIF aims to connect the past, present and future. This connection can sometimes be difficult to find as the values of the medical student and the profession itself are not always aligned. Solving such discrepancies and finding a personal way of being a physician within the boundaries of the system is a core challenge of PIF. PIF does not follow a clear step-by-step process, neither does it end when finishing education. It is a lifelong process, where interactions and experiences keep changing how one sees oneself and how one desires to be. This challenge requires both understanding of the self (including past experiences) and understanding of the profession. A further elaboration of PIF, the challenges it encompasses, and the benefits a developed PI has can be found in Chapter 2.

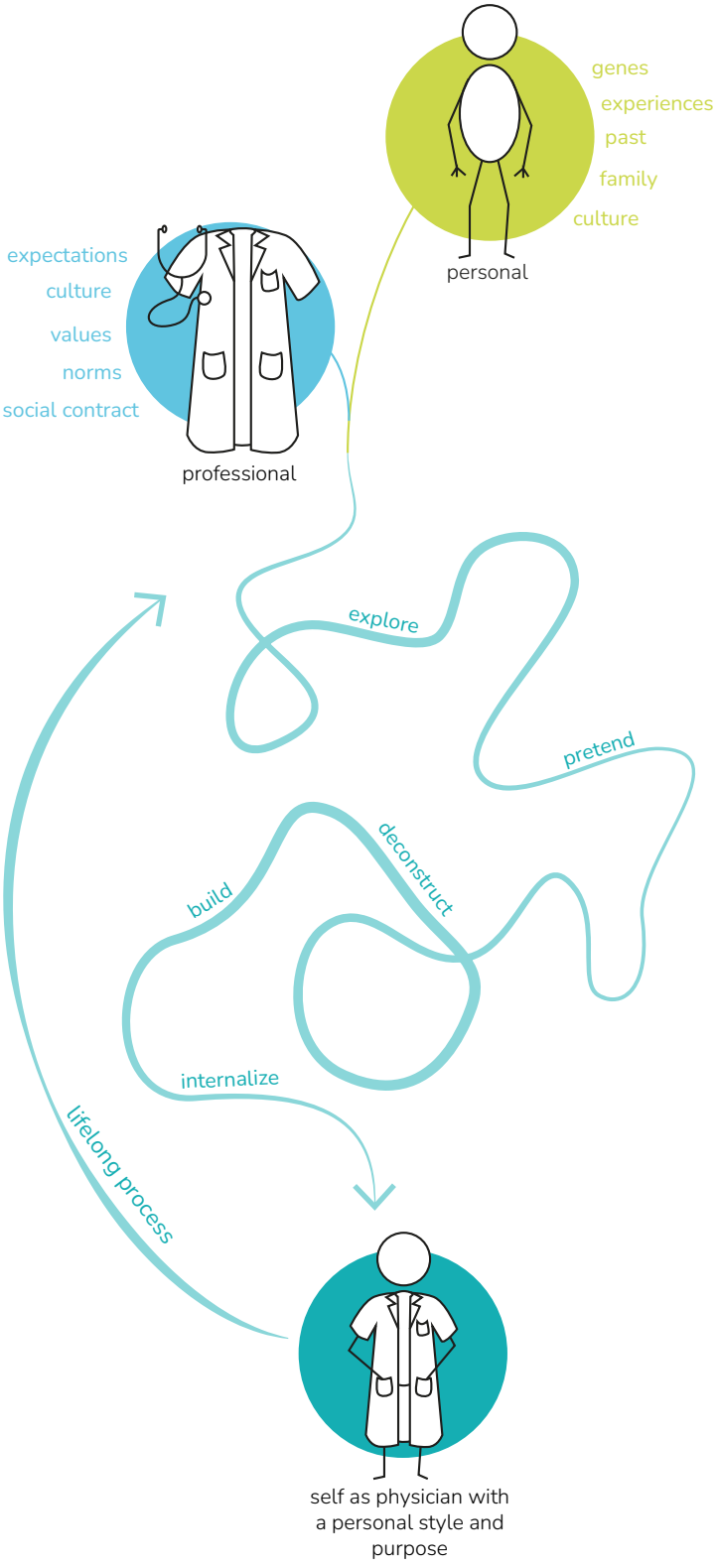


Figure 1.3: Visual summary of the PIF process

1.3
Project Scope and Aim

As described in Section 1.1, society and the healthcare system in general (the macrolevel) ask for doctors with a developed PI. One level lower (the mesolevel) healthcare education in The Netherlands and abroad point out medical education should support PIF. Finally (on a microlevel), we have the institutions providing healthcare education such as the UMCU and the University of Utrecht (UU), see Figure 1.4. This project started with the desire of professionals in UMCU to 'bring more humaneness in medicine education' (see Appendix 2 for the project brief). According to them, existing education teaches students to understand the biological functioning of the body, to follow the script for diagnosing illnesses and to fit the picture of the doctor in the white coat. Instead, they advise to focus on the personal and humane sides of physician hood, on understanding and developing yourself as a doctor. In other words, on PIF.

The client, and thus the context, of this graduation project is UMCU. UMCU is one of the eight University Medical Centres in The Netherlands and is currently revising their BSc and MSc medicine curricula. While the existing curriculum contains several assignments aiming to support the PIF of medical students, a coherent program fitting the subjectiveness and sensitivity of personal-professional development is not yet there. Therefore, the overarching goal of this project was

finding out how to support UMCU medicine students in their PIF to prepare them for the healthcare challenges of the future.

To reach this goal, students from both the BSc and MSc programs were included, and teachers and medical specialists from all over the curriculum and hospital were involved. Besides, coordinators of courses already addressing PIF-related aspects were included to make sure no double work is done. I aimed collaborate and to contribute with something that fills in the gaps. Finally, the design will only be taken further if the directors and decision makers see the value. Therefore, they were an important stakeholder as well. Figure 1.5 shows all these stakeholders most important for the project.

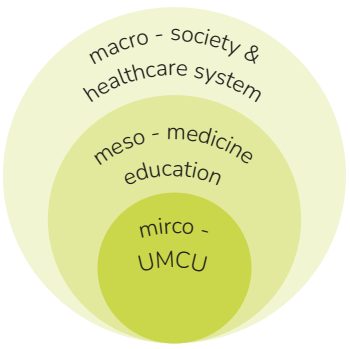


Figure 1.4: Contextual levels addressing PIF

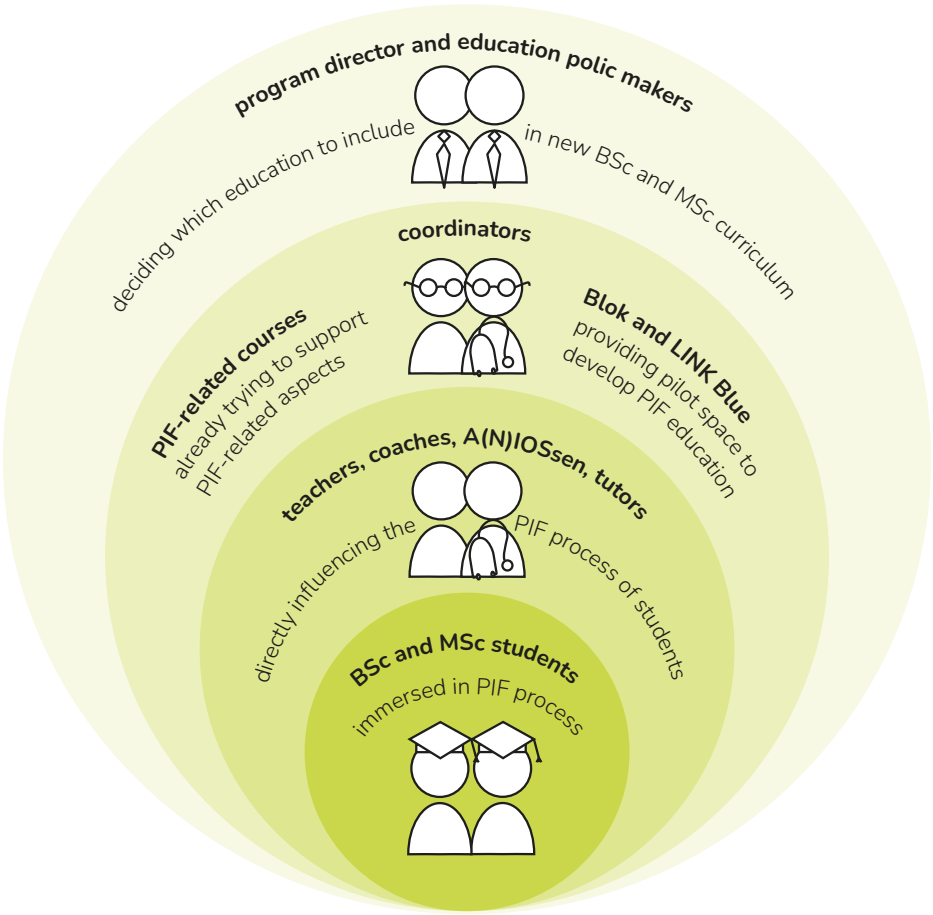


Figure 1.5: Most important stakeholders

1.4
Design Approach

This graduation project followed the diverging-converging structure well-known in design processes, see Figure 1.6. The first diamond focused on research. Via a literature study, interviews and creative sessions the concept of PIF as well as the desired role of UMCU medicine education were explored (diverging), and defined (converging). This specified design focus was the start for the second diamond which focused on creating a design. Diverging existed of ideation and brainstorming with stakeholders, converging was the creation of a concept to pilot. Finally, diamond three diverged by testing the defined concept and exploring possibilities to expand it to the whole curriculum. The converging phase existed of defining recommendations and next steps (goal five). Each of the three diamonds is addressed in one of the parts of the three this thesis is divided in three parts.

Part A: Research

The first diamond focuses on research and is described in Part A (Chapters 2-6). Diverging happens via exploring PIF, the UMCU curriculum, and the desired role of PIF in this curriculum. Chapters 2-4 each explore one of the questions showed in Figure 1.7. These chapters conclude by summarizing the insights in three ways:

1. The insights are used to define challenges, problems and gaps in PIF education for medical students
2. The insights are used to define wishes and requirements for the design
3. The main insights are summarised in key takeaways

These three elements reoccur in Chapters 2, 3 and 4, and are synthesised in Chapter 5. This converging finally leads to the definition of the design goal in Chapter 6. The design goal forms the starting point of a new diverging phase beginning in Part B.

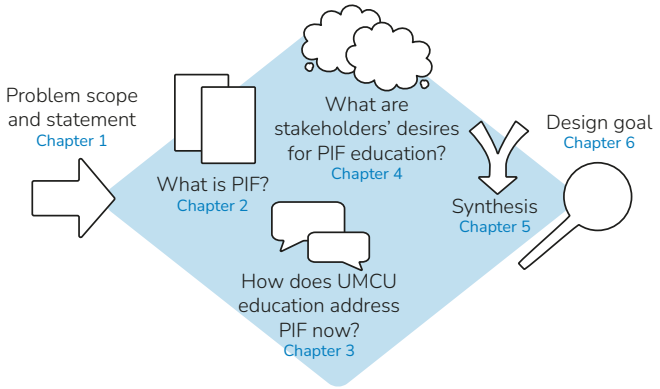


Figure 1.7: Diamond 1

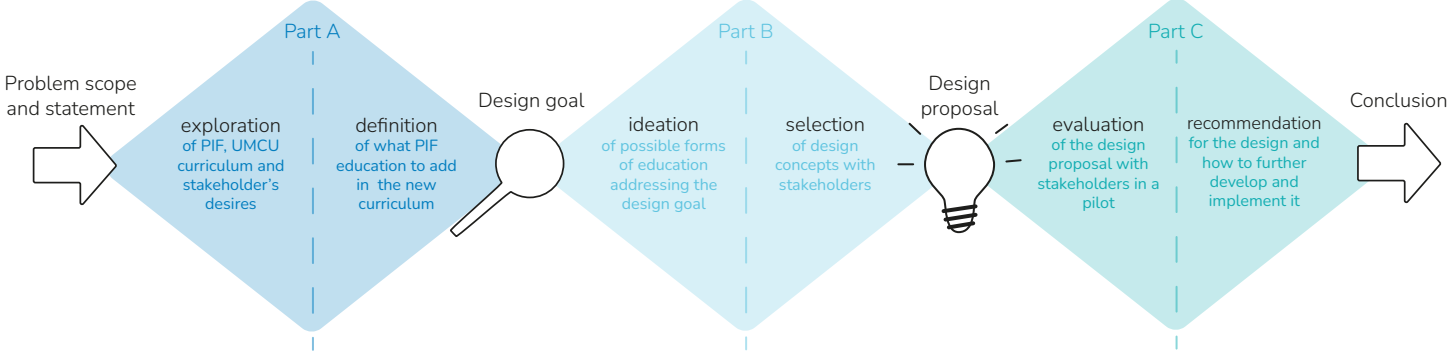


Figure 1.6: The three diamonds of this graduation project

Pasrt B: Conceptualization

While the diverging and converging in Part A are about the design problem, the diverging and converging in Part B are about the design solution (see Figure 1.8). Chapter 7 describes the diverging phase, as it briefly explains the process of ideation and the three concepts that followed from it. Chapter 8 converges by evaluating the concepts with a design method and stakeholders, in order to select a suitable (combination of) concept(s). This results in a final design proposal described in Chapter 9.

Part C: Evaluation

The final part of this thesis uses the diverging and converging processes to create recommendations (see Figure 1.9). Chapter 10 describes how the design is evaluated in a pilot study, resulting in some possible improvements. Besides, the design is compared to the goals of the Raamplan 2020. The thesis ends with discussing the implications of the findings, describing possible next steps, and a conclusion and reflection in Chapter 11.

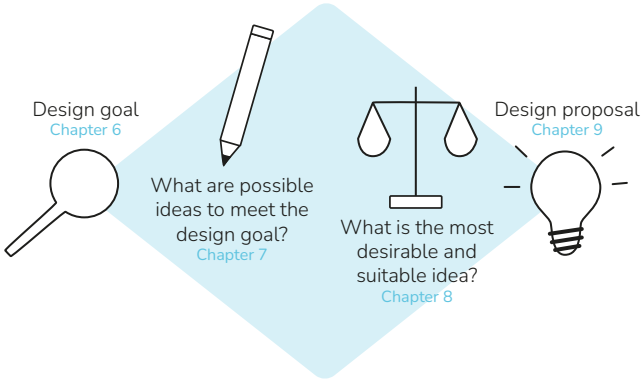


Figure 1.8: Diamond 2

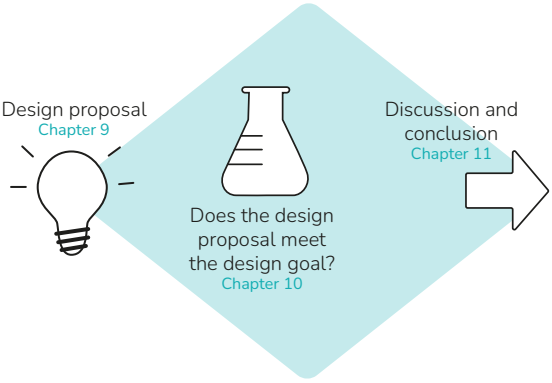


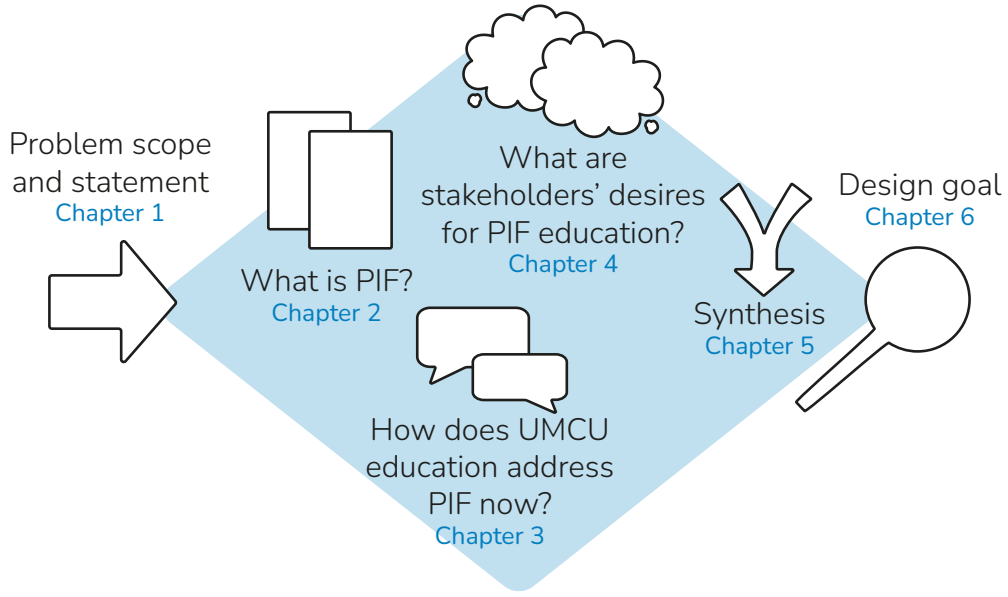
Figure 1.9: Diamond 3

Part A
Research

The goal of Part A is *exploring* PIF, the current UMCU curriculum and the desired role of PIF in this curriculum, to use these insights for *defining* a design goal. Therefore, Chapter 2 explores PIF and Chapter 3 explores the UMCU curriculum. Both chapters end with challenges, requirements and wishes for the to-be design solution. Chapter 4 brings these insights a step further and uses them in creative sessions with a variety of stakeholders to find out what PIF aspects they think education should address and how this should be done. Chapter 5 combines the insights the insights of Chapter 2 and 3 with the desires of stakeholders found in Chapter 4 to create the design goal in Chapter 6. This design goal forms the starting point of a new diverging phase beginning in Part B.

Part Content

2 Professional Identity Formation
3 PIF and the Current UMCU Curriculum
4 Stakeholders' Desires for PIF Education in UMCU
5 Synthesis
6 Design Goal



2 Professional Identity Formation

This chapter begins with the view of both literature and interviewees on what the process of Professional Identity Formation (PIF) entails, what benefits this formation brings and what factors influence it. As educators have to be able to explain and assess PIF, approaches to make the concept more concrete and measurable are described as well. Finally, these broad and deep explorations of PIF result in the formulation of challenges to address in PIF education for medical students.

Chapter Content

2.1 Approach
2.2 PIF in the Medical Context
2.3 Why Support PIF in Medical Students
2.4 Factors Influencing PIF
2.5 PIF Assessment
2.6 Challenges in Medical PIF Education
2.7 Takeaways

“I think professional identity starts with getting to know yourself. Knowing what your boundaries are, knowing what situations you can encounter in your profession, and what effect they have on you. I think PIF is being able to understand the norms and values of the profession, while knowing your own nuances within them. And, I think that manifests itself in contact with others.”

Coordinator Patient Perspective Program

2.1 Approach

To understand what PIF is in the medical educational context, both a literature study and interviews were conducted. First, an inductive thematic analysis with scientific papers addressing PIF was performed. Interviews were added to specify on the medicine education in The Netherlands and because literature does not provide state-of-the-art conceptions.

Literature Study

Goal: Understand PIF, including its influences and benefits

A small scoping review was performed in the databases Scopus, Taylor & Francis and PubMed following the process shown in Figure 2.1. In the thematic analysis, citations were selected and a first list of codes was formed. After coding all quotes, the codes were divided into several subcodes which brought some changes in the codes list (see Appendix 3). Finally, the literature was summarised to answer the questions:

1. What is PIF in the medical context (Section 2.2)?
2. Why support PIF in medical students (Section 2.3)?
3. What aspects influence PIF in medical education (Section 2.4)?
4. What are example PIF programs in medical education (Section 2.4 and Section 2.5)?
5. What are possible PIF frameworks (Section 2.5)?
6. What are the challenges of supporting PIF in medical students (Section 2.6)?

Interviews

Goal:Understand PIF, find out how PIF is currently addressed in the curriculum and what is desired

Semi-structured interviews were conducted with 11 participants all dealing with PIF in an educational setting. The participants were course coordinators of PIF-related courses, education developers, coaches for students having problems with professional behaviours. None of the interviewees had previous literary knowledge of PIF, only practical experience, except for one person who has done her PhD on PIF in medical students. The interview script addressed the interviewees' views of PIF (Chapter 2) and the education they give (Chapter 3). All interviews were transcribed verbatim and coded according to the topics of the six questions answered with literature (deductive thematic analysis). Quotes inside each code were clustered, after which the defined clusters were compared with the clusters of subcodes found in literature.

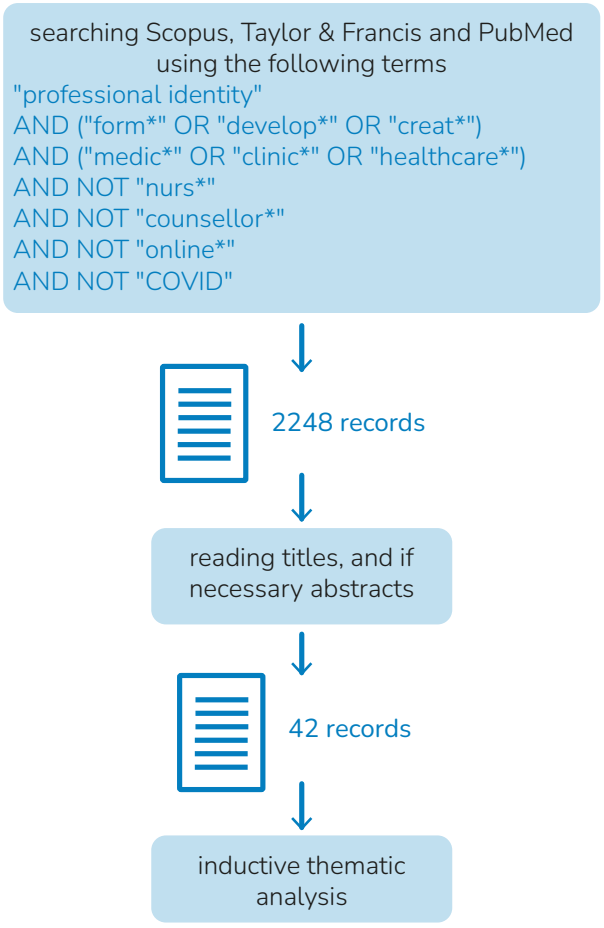


Figure 2.1: Participants ranking the directions

2.2
PIF in the Medical Context

Before addressing PIF, it is useful to explore what identity formation is. According to literature, identity formation is a process starting in the transition between childhood and adolescence, including the life phase medicine students are in. In this period of life, one starts to wonder 'Who am I?' and finds a social niche to identify with (Erikson, 1968; Kalet et al., 2017; McLean & Pasupathi, 2012). In this process, a life story is created where one will often unconsciously select childhood memories and experiences to integrate into one's identity (Erikson, 1958; McAdams, 2011). The processes of group identification and personal formation are happening through interactions with and categorization of others (Goldie, 2012; Warmington et al., 2022), see Figure 2.2.

Identity is seen as synthesised when a sense of inner sameness and continuity is perceived, visible in consistent behaviour across contexts and over time (McAdams, 2011; McLean & Pasupathi, 2012). Still, identity is dynamic and identity formation is a lifelong process: as the demands of social life change, identity changes as well (Goldie, 2012; McAdams, 2011; Park & Hong, 2022).

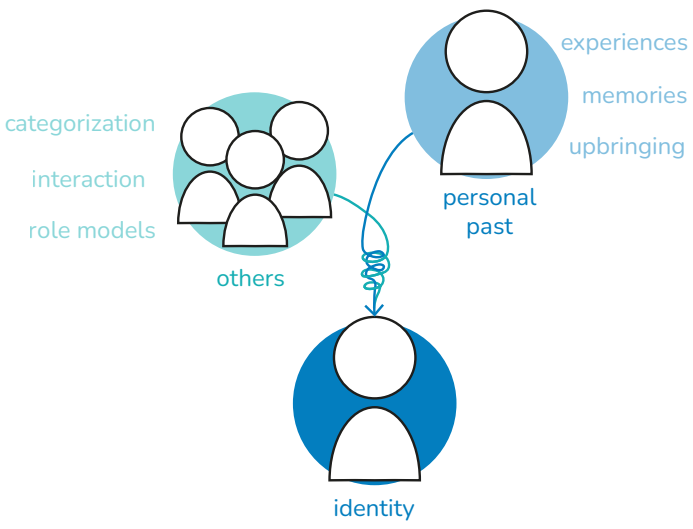


Figure 2.2: Simplified model of identity formation, showing the forces which influence the continuous process

PIF According to Literature

Professional Identity (PI) is part of your full identity. Professional Identity Formation (PIF) influences identity formation and the other way around, the processes are intertwined. Literature clearly states the difference between professionalism - a way of acting - and PI - a way of being - (Cohen, 2007; Cruess et al., 2014). As professional behaviour is measurable, it is often the focus of education, which is the case in the Raamplan 2020 as well. These guidelines state that professional behaviour exists of three components (van De Pol et al., 2020, p. 75): dealing with tasks, dealing with others, and dealing with yourself. Dealing with yourself is most closely connected to identity. However, component two is also related as literature emphasises that PI is something that formed in interactions with the self, others (patients, team members, supervisors etcetera) and the healthcare system (Désilets et al., 2022; Rees & Monrouxe, 2018). Similar to identity formation, PIF is described as consisting of a personal- and other-related process. When defining PIF, literature often refers to the following definition:

> *an adaptive developmental process that happens simultaneously at two levels: (1) at the level of the individual, which involves the psychological development of the person and (2) at the collective level, which involves the socialization of the person into appropriate roles and forms of participation in the community's work.*
>
> Jarvis-Selinger et al. (2012, p. 1185)

Others refer to the two processes as intrapersonal - including one's personal characteristics in the profession - and interpersonal - holding a shared philosophy within the discipline - (Hinkle & Drew, 2020; Kalet et al., 2017). Some researchers do not provide specific terms but still refer to the combination of individual and professional aspects in the process of forming PI (For example, Goldie, 2012; Maitra et al., 2021; Sarraf-Yazdi et al., 2021). Figure 2.3 on the next page summarises these two aspects integrated in the PIF process.

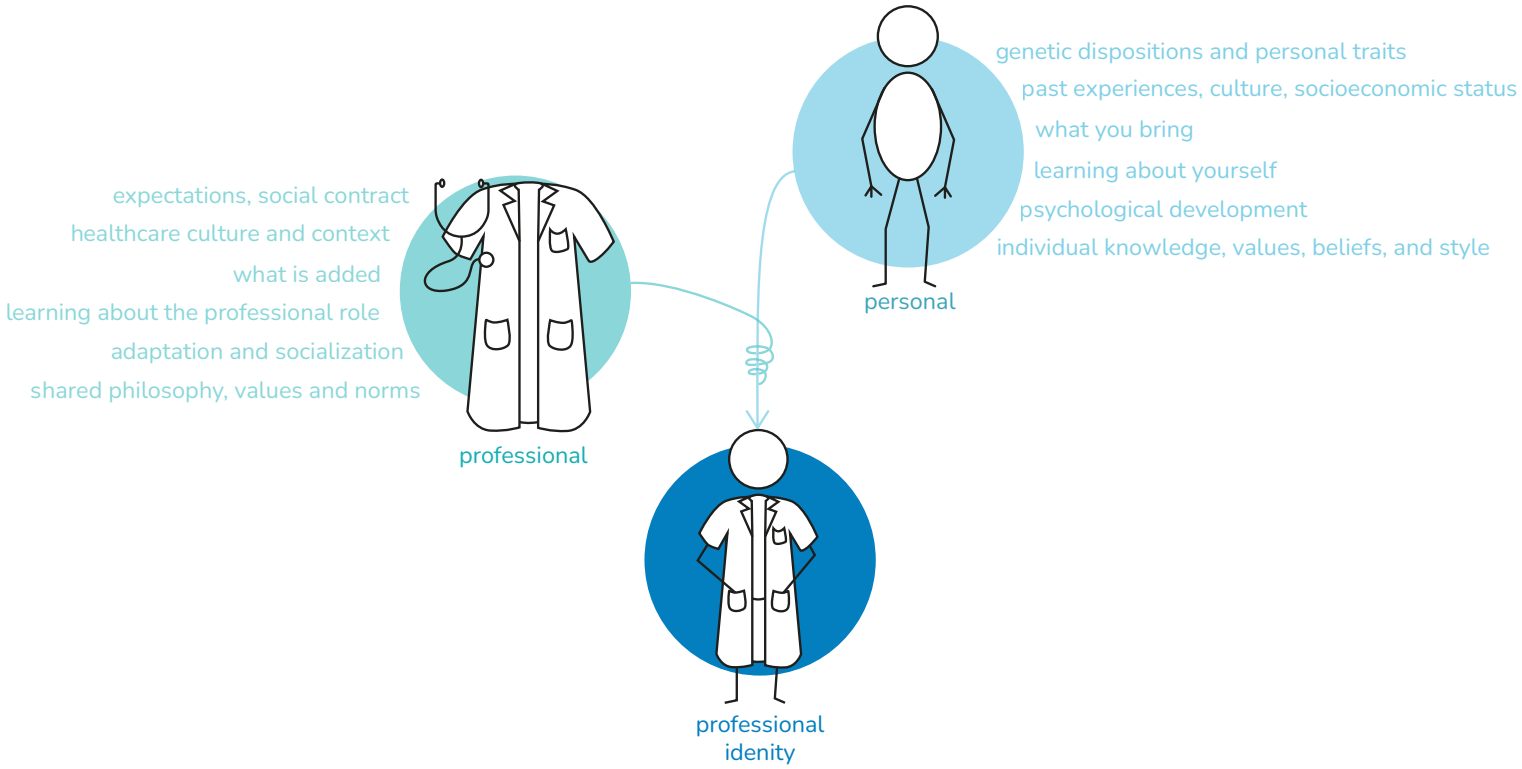
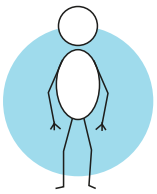


Figure 2.3: Simplified model showing that PIF is about integrating personal and professional aspects



The personal side is what you bring, the individual aspects you enter the PIF process with. However, this side keeps having an influence over time as well, see Appendix 4 for examples of schematic representations made by Cruess et al. (2015), Sarraf-Yazdi et al. (2021) and Fergus et al. (2018). This personal influence makes PIF a unique process for each individual. Every person brings his/her own personality and experiences which provide a unique filter through which new experiences are assessed (Fergus et al., 2018; Holden et al., 2012; Orsmond et al., 2022). This personal identity exists of both a nature component (gender, genetic predispositions, race, personal characteristics) and nurture component (culture, socioeconomic status, previous education), and is the foundation for PIF (Chandran et al., 2019; Cruess et al., 2015; Goldie, 2012). As Barnhoorn and Veen (2021) state, there is no fixed way to be a physician. It is about finding a style that suits you, for example, are you more an observer or talker, more leaning towards emotions or cognitions (Hinkle & Drew, 2020). The variety in medical students also results in each of them going through the PIF process at a different pace (Cruess et al., 2015; Lewin et al., 2019).

Just as with identity formation, experiences and memories of the past are an important part the personal aspect of PIF (Chandran et al., 2019; Goldie, 2012; Parsons et al., 2021). McLean and Pasupathi (2012, p. 9) describe PIF as a process of finding "commitments that allow continuity between the past, present, and future". However, not everything of the past identity remains, elements of one's identity are deconstructed, constructed or adapted in the PIF process (Glas, 2021; Sarraf-Yazdi et al., 2021; Wald et al., 2015). Thus, some elements may be repressed, and new meanings are given to previous experiences, but a personal core remains (Chandran et al., 2019; Cruess et al., 2015).

Literature predominantly focusses the other part of PIF, on incorporating the professional values, norms and behaviours and committing to the shared philosophy of the profession (Bebeau & Faber-Langendoen, 2014; Holden et al., 2012; Wald et al., 2015). Holden et al. (2012) and Wald et al. (2015) label this process of internalization as a fundamentally ethical one. Again, researchers often refer to the same definition:

> *A physician's identity is a representation of self, achieved in stages over time during which the characteristics, values, and norms of the medical profession are internalised, resulting in an individual thinking, acting, and feeling like a physician.*
>
> Cruess et al. (2014, p. 1477)

Some scientists even state that an individual must adhere to the shared values and norms (Bebeau & Faber-Langendoen, 2014; Cruess et al., 2015). While emphasizing the importance of commitment to the core principles and values of the profession, not many records of the literature study provide specific examples of these values. The examples found in literature and described in the Raamplan 2020 including integrity, empathy, self-awareness and other values showing the importance of providing service to the individual patient and society in general. The values found are summarised in Appendix 5.

So, PIF is about integrating professional aspects while maintaining a personal core, about finding a personal way to fit in the professional role. This is a process of exploration, of trying on different identities in search for a good fit (Goldie, 2012; Holden et al., 2012; Lewin et al., 2019). This exploration is centred around the questions 'Who am I?' and 'What type of doctor would I like to become?' (Barnhoorn & Veen, 2021; Chandran et al., 2019; Park & Hong, 2022). Some explorations lead to affirmation of one's identity, some to changes or deconstruction as described above. Thereby, PIF is a process in which medical students not only find out who they are, but also who they are not (Goldie, 2012). For effective formation, each exploration should be evaluated (Goldie, 2012), for example by asking oneself "Does the prospect of having this identity feel deeply right and lead to a sense of peace with myself?" (Holden et al., 2012, p. 251).

PIF is not a linear process, but a process with twist and turns, sprints and iterations (Chandran et al., 2019; Cruess et al., 2014; Kline et al., 2020; Rees & Monrouxe, 2018). Besides, it is intertwined with the development of one's larger adult identity (Cruess et al., 2014; Lewin et al., 2019). A time of exploration may be followed by a commitment, by integrating the professional self into the existing self (Cruess et al., 2015; Goldie, 2012; Kline et al., 2020). This does not happen from one moment to the other, but starts with 'pretending' (Barnhoorn & Veen, 2021; Cruess et al., 2015; Sarraf-Yazdi et al., 2021). Rees and Monrouxe (2018) nicely describe this part of PIF with the metaphor of buying a new pair of shoes:

> *As we begin to develop an identity, it may initially feel like a new pair of shoes, slightly uncomfortable, with walking an awkward, conscious effort. But eventually, those shoes soften and mould to our feet; we no longer give them a second thought. As with the shoes, our identity becomes part of who we are.*
> Rees and Monrouxe (2018, p. 202

Pretending' slowly transforms into 'being', into identifying as a member of the profession, feeling that one fits in the group. At this point, one knows who (s)he is in the professional context (Hinkle & Drew, 2020; Lawson et al., 2017; Orsmond et al., 2022; Rees & Monrouxe, 2018) and has found personal meaning in their medical career (Lawrence et al., 2020; RISHI, 2022).

> *The goal is not to come to a shared meaning, but to allow each resident to come to his or her own meanings and thus to develop his or her own professional identity.*
> Clandinin and Cave (2008, p. 769)

Still, PI is a dynamic construct and PIF continues throughout one's professional life (Chandran et al., 2019; Hinkle & Drew, 2020; Kalet et al., 2017). Interactions with the social world, and changing goals, priorities and beliefs keep influencing the idea about who one wants to be (Lawson et al., 2017; Orsmond et al., 2022; Rees & Monrouxe, 2018).

> *A professional identity involves continuous 'becoming' rather than having a fixed point to aim for.*
> Shaw and Bailey (2016, p. 3)

An essential part of PIF is not fixing oneself on one identity, but accepting that who one is and what one does is dynamic (Evers, 2022). However, one needs a foundation to build on and skills to keep this dynamic process going. Medical education could, and in the opinion of many should, enable students to create such a foundation and skillset.

PIF According to Interviewees

Interviewees, dealing with the PIF process of students in their daily work, also describe the importance of addressing the two sides of PIF: committing to expectations, norms and values from the outside, and finding a unique personal identity in this professionality. Just as literature, interviewees mention the personal side is both the basis a student brings, and something that keeps having an influence as the student is finding personal nuances and styles in his/her physician role.

Contrary to literature, interviewees mainly focus on the personal side of PIF. They describe PIF as finding out who you are and how you shape your role as student (and later doctor). What parts of yourself do you want to bring to your practice? Something not mentioned in literature but emphasised by interviewees is to prevent making your professional role your identity. Bringing something of yourself to your professional role is stimulated, but students should not limit their identities to their professional role. Besides, several interviewees described 'knowing your own boundaries' as a key feature of PIF. When interviewees mentioned the two sides of PIF, they were asked to describe what the professional norms and values that are imposed entail. There is a large overlap with the values described in literature (see Appendix 5) with only the value of balance between good care for patients and oneself being added.

In line with literature, interviewees emphasised that PIF occurs in interaction with others and different contexts. It is not possible to develop identity on your own. Just as literature indicates, interviewees describe that part of PIF is 'fake-it-till-you-make-it' until one feels part of the medical profession. Besides, interviewees also see PIF as a lifelong process. In the context of education one of the interviewees described a few key phases in PIF:

1. Integrating the role and meeting the expectations of being a medicine student (year 1-3)
2. Integrating the role and meeting the expectations of being a resident (year 3-5)
3. Integrating the role and meeting the expectations of being a semi-doctor (year 6)
4. Integrating the role and meeting the expectations of being a doctor (after year 6)

Of course, after the doctor role many other roles can follow (scientist, educator, specialist etcetera).

Conclusion

As Figure 2.4 shows, PIF is a process of finding the right balance between the internalization of the values, norms and behaviours of the profession, and the development of a personal style and purpose. The formation of PI happens through exploration, adaptation and creation of different selves in interaction with others. It evolves around the questions 'Who am I?', 'Who do I want to be?' and 'What are my boundaries?'. In PIF one tries to find a commitment that provides continuity between the past, present and future. After commitment to one possible self comes a time of 'pretending'. Finally, one identifies with the profession and finds personal meaning in executing the professional role and responsibilities. However, as PI is a dynamic construct existing in the interaction with others, it keeps changing throughout one's life as the social context and one's role within it change as well. Therefore, PIF education is also about creating the ability of adaptive expertise and seeing it as a process rather than a goal.

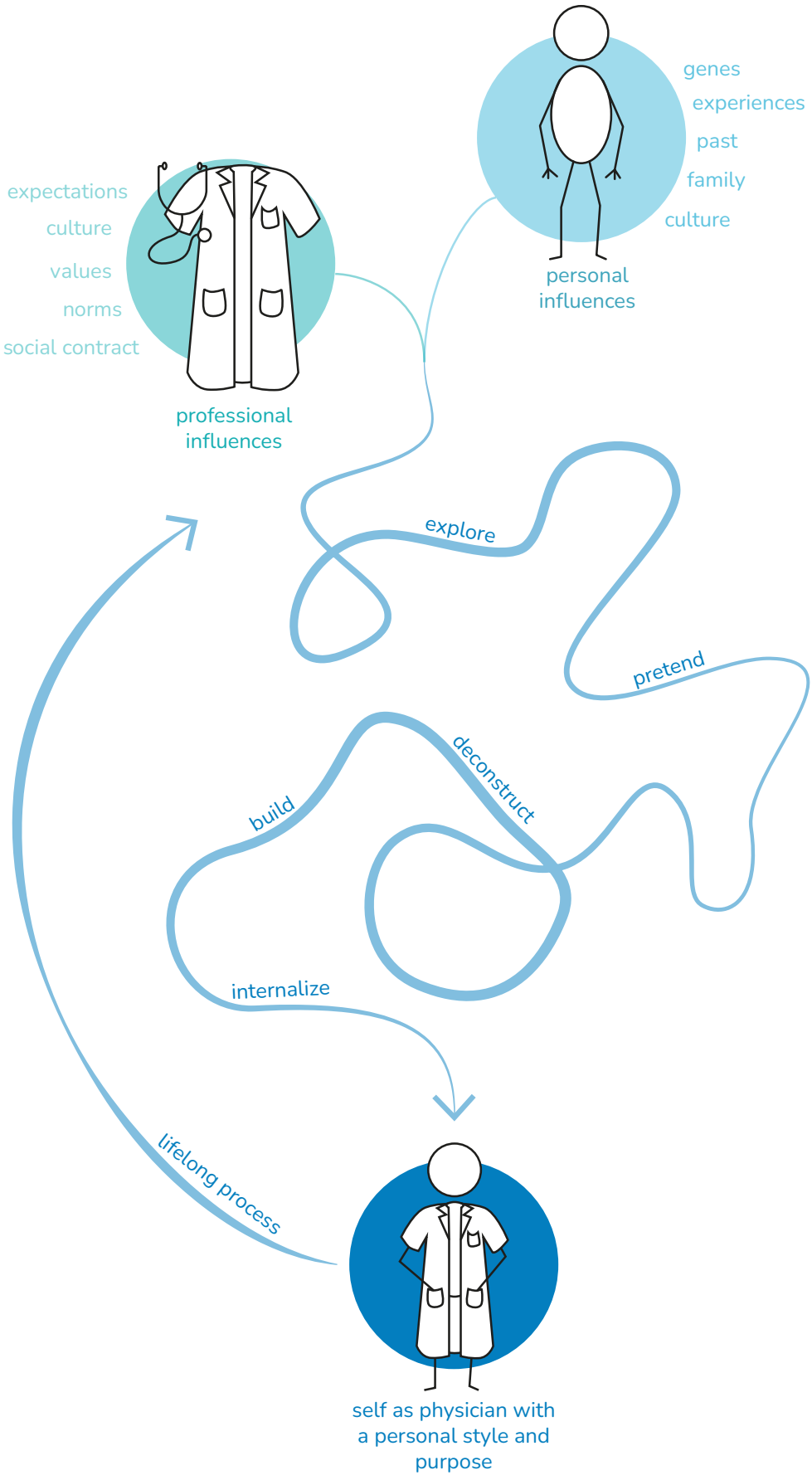


Figure 2.4: Visual summary of the PIF process

2.3
Why Support PIF in Medical Students

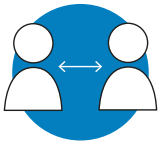
Chapter 1 already indicated a need for PIF in medical education: society and the healthcare system (macro context) ask for different competencies of the medical specialist all requiring a developed PI, in addressing medical education (meso context) many researchers see PIF as the core educational goal, and UMCU (micro context) sees the usefulness of PIF for bringing more humaneness in medicine education. However, there are more concrete benefits of supporting PIF in medical students brought forward by literature and interviewees. As PI expresses itself in interactions with the self, others and the system, it also has benefits for each of these interactions. This section summarises the benefits on three interaction levels, Appendix 6 elaborately describes them all.

Individual benefits

Research and interviewees indicate that a strong PI (knowing who you are, who you want to be, and what you need) is related to higher levels of wellbeing and lower burnout scores (Monrouxe, 2010) (P3, P6). Without attention for PIF, students may feel they have to hide the personal side, or feel like they lose themselves and fully adapt to the identity of the medical community (Kay et al., 2019; Kline et al., 2020) (P6, P10). The integration of personal aspects in the professional life ensures satisfaction with the life and career choices made (Mittendorff et al., 2012; Rees & Monrouxe, 2018), and even leads to more success in one's career (Joseph et al., 2017; Sarraf-Yazdi et al., 2021). Besides, a mature PI results in increased confidence and self-esteem (Chandran et al., 2019; Park & Hong, 2022; Skorikov & Vondracek, 2011) (P10) thereby enabling students to better position themselves in the care team of their residency and learn more (Plat, 2022) (P4, P6).

> *PIF is really a core part of education. Because everything is influenced by how you feel and whether you feel you are in the right place, strong enough to stand up for yourself, open to people around you, working well together. That is all what counts.*
>
> Coordinator Professional and Personal Development

Benefits for Colleagues and Patients



A strong PI facilitates teamwork and promotes collaborative leadership styles, also in interdisciplinary settings (Liao & Wang, 2020; Rees & Monrouxe, 2018) (P1). Already in education, addressing PIF creates a sense of belonging to the educational community and the profession in general (Ashforth & Mael, 1989; Chandran et al., 2019).

Supporting the PIF process of doctors to-be also has benefits for patients. The increase in wellbeing and confidence caused by a developed PI lead to greater presence with clients, more attentive doctors, and indirect improvements in patients' wellbeing via copying the physician who is a role model for them (Hinkle & Drew, 2020; Rode, 2021) (P1, P3). Besides, space and time for PIF legitimises the humane aspects of being a physician such as empathy and connection (Fergus et al., 2018; Rabow et al., 2010; Shapiro et al., 2021) (P9), ensures ethical practice (Goldie, 2012; Rees & Monrouxe, 2018) (P2, P5), and makes students aware of the influence of their identity on their behaviour (Barnhoorn et al., 2019).

> *When doctors are more authentic, patients have more trust, there is a better working relationship and better results.*
>
> Coach for doctors

Benefits for the Healthcare System

Less burnouts, better care, and career satisfaction are all effects of PIF resulting in a decrease of healthcare costs (Rode, 2022) (P3, P6). Furthermore, going through the process of PIF makes physicians more adaptive in the evolving healthcare system (Goldie, 2012; Kline et al., 2020) and better able to deal with complex challenges (Kalet et al., 2017; Rabow et al., 2010).

Conclusion

Supporting PIF has positive effects for the young doctor now and in the future, for the patients (s)he will take care of, for the colleagues (s)he works with, and for the system financing the care. It has both emotional and functional benefits to know who you are, what you need and who you want to be as a physician (i.e. having a strong PI). A strong PI makes the student/doctor more confident and determined, while at the same time more sensitive and flexible.

2.4
Factors Influencing PIF

Literature and interviewees mentioned several aspects which influence the PIF process, see Figure 2.5 and Appendix 7. It is important to understand the influences as the inability to support them may cause the influences to become barriers instead of promotors in merging the professional and personal aspects (Sarraf-Yazdi et al., 2021).

Besides the unique effect of each factor (described in Appendix 7), three general influencing mechanisms can be extracted. First of all, stories seem to have in important role as a way of communicating PI but also as a prompt for PIF. Stories of patients, role models and peers are part of many of the influencing factors, as well as the use of narrative reflection or personal stories. In the influencing factor of art, stories come from a wider variety of sources including literature, films, comics and songs. Wald et al. (2015) even described personal narratives as a key driver in PIF.

Secondly, all influencing factors can be both a barrier and promotor of PIF. For example, clinical experiences are often seen as the impetus for PIF, through this exposure students shift from performing well on exams to performing well to provide good care to patients. However, they can also overwhelm students in such a way that they close themselves off from the influence (Sarraf-Yazdi et al., 2021). Another example are role models, who can inspire students but can also model less desired behaviour or be fully missing (Cruess et al., 2014; Holden et al., 2012; Sarraf-Yazdi et al., 2021). Interviewees especially addressed the detrimental effects of the healthcare culture and the lack of time and space for reflection.

> *You can explain it beautifully in year 3 or 4, but at some point, those people start doing residencies and then they suddenly come in a completely different reality. That influence of the hospital culture, that's the power you actually have to resist.*
>
> Psychiatrist and philosopher

Thirdly, not all factors may be influencing the PIF process of a student at the same time. Some students may have a clear example in their family or strong connections with friends, whereas others have not. Over time, the influencing factors on one specific student may also change. For example, the healthcare system and socialization are factors that will probably only arise later in medical education.

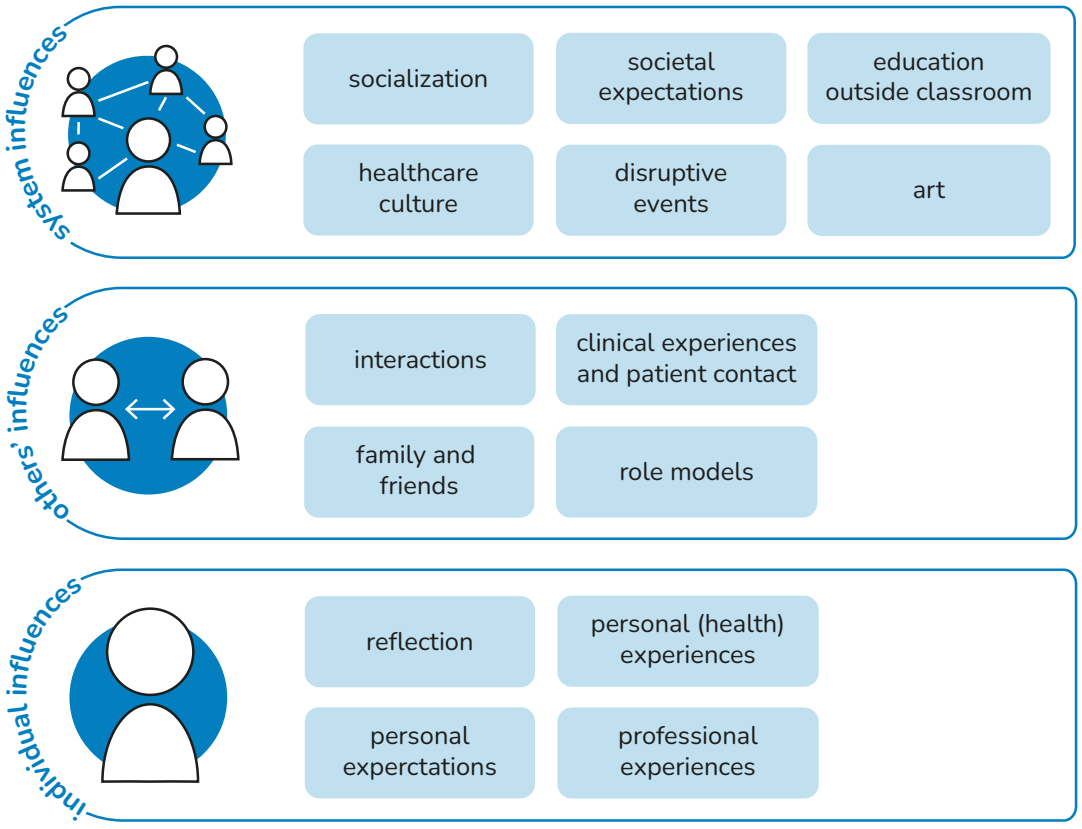


Figure 2.5: Factors influencing PIF clustered on the three interaction levels

2.5 PIF Assessment

Next to the uncontrolled influence, educational programs can use the influencing factors as part of their strategies to support PIF. For example, mentorship (closely related to the influencing factor of role models) and reflection (one of the influencing factors) are two of the most common strategies used in existing PIF programs. Other strategies include using creativity to enhance PIF or having faculty members share stories. An overview of the strategies, including their effects and disadvantages mentioned in literature was created (see Appendix 8).

In all the example programs, a necessity for working on PIF was the creation of a safe and trustable environment. Furthermore, the effects of many programs such as the Healer's Arts curriculum or the creative approaches depend heavily on the students' willingness and choice to engage in the activity (Lawrence et al., 2020; Shapiro et al., 2021). Besides, almost all programs address the problem of a lack of time, and the problems of educating the staff and having enough staff for the small groups needed for the educational strategies. A final commonality among the programs is the use of stories. For example, in the strategy of reflection (use of narrative reflection), mentorship (stories of mentors), creativity (creating stories), and showing the inverse (stories of bad examples) storytelling comes back (see Appendix 8).

Conclusion

There are many factors influencing PIF in medical students, some easier to address than others. The influencing factors can also be used deliberately to support PIF. There are several educational programs and strategies to support PIF, all with their own advantages and disadvantages. A safe environment, student motivation, staff skills, and pedagogical space seem to be recurring preconditions. Stories seem to have a dominant position in the influencing factors and educational strategies, happening in different settings with different stakeholders for different reasons.

For educational purposes it is desired to make PIF more concrete and measurable, to be able to explain and assess it (Bebeau & Faber-Langendoen, 2014; Tagawa, 2019). Especially assessment of PIF can be challenging (Tagawa, 2019; Wald et al., 2015). Four forms of assessment were found in literature (see Appendix 9). Unfortunately, most of these assessments only address the professional side of PIF or are difficult and time-intensive to use. Having a framework or theory describing concrete states or processes of PIF may be another approach to operationalise it. Besides, it has been suggested that effective PIF education builds on a framework to support the education developers, teachers and students themselves (Cruess et al., 2015; Lewin et al., 2019; Maitra et al., 2021). PIF literature provided 27 of such frameworks and theories, which were analysed and clustered into five theories (see Appendix 10). Most of these frameworks are based on steps or states. Many theories describe a last step in which PI is not only formed, but the student also has the skills to maintain the PI later in life.

Framework 4 (depicted in Figure 2.6) connects an identity status theory with narratives. This connection described by McLean and Pasupathi (2012) may be useful as previous sections have indicated a connection between storytelling and identity. The variety in but also commonalities between the frameworks provide a better understanding of PIF. A further selection of one of the five theories for this project depends on the exact goal this project will have, and will therefore happen in Chapter 6 where the design goal is formulated.

Conclusion

There is no simple and valid form to assess PIF in medical students. However, literature does provide many frameworks and theories about PIF. Often, these frameworks are based on steps or states which is beneficial for explaining the PIF process and determining where in this process a student is. One of the final frameworks explicitly describes a connection with stories, which supports the findings of earlier sections about the important role stories play in PIF.

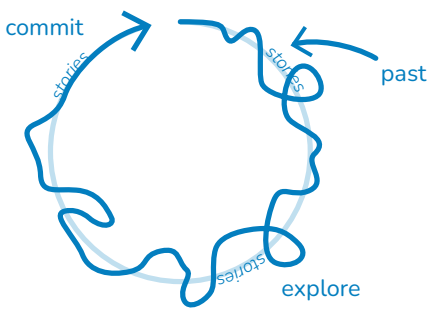


Figure 2.6: Framework 4 'Explore and Commit'

2.6
Challenges in Medical PIF Education

Understanding what PIF entails (Section 2.2), what benefits is has (Section 2.3), how it is influenced (Section 2.4) and if it can be made more concrete (Section 2.5) bring forward several challenges to address when supporting PIF in education. Besides, literature and interviewees mention some specific challenges, which according to them should be addressed for full and appropriate PIF in medical students. Clustering all these challenges resulted in 16 PIF-related aspects to address in order to fully support the PIF of medical students. Most challenges are about the skills and knowledge of students, a few focus on factors around them which influence the students' PIF process. Figure 2.7 provides an overview of the challenges, each of them is briefly explained below. More information about each challenge can be found in Appendix 11.

Challenges to Address in PIF Education for Medical Students

1. **Self-comprehension**: Support the student in understanding who one is as a person, understanding how one has been formed, and creating a coherent life story
2. **Set boundaries and conditions**: Support the student in exploring what one needs to perform well now and in the future, and in developing skills to recognise and guard the personal boundaries in practice
3. **Perspective awareness**: Support the student in understanding the influence of one's own experiences on how a patient or case is viewed, and in finding a way to collaborate with colleagues who have a different approach and perspective
4. **Define your own style**: Expose the student to a diversity of doctors with different personalities, and support him/her in finding a personal style which balances being a professional and bringing something of oneself
5. **Useful authentic reflection**: Teach the student how and why to reflect, while providing time and support to do so in an authentic and creative way
6. **Choose your own path**: Help the student in understanding what all the study and career possibilities, and in figuring out which route and final profession suits best
7. **Coping with emotions**: Support the student in exploring and expressing the emotional aspects of care, and in developing self-compassion and coping skills for their emotional struggles
8. **Insecurity to confidence**: Let the student feel it is ok to be insecure and become aware of internalised assumptions and expectations, while also supporting the student's feeling of competence in becoming a doctor
9. **Understand the profession**: Teach the student what the profession, its norms and values, and the social contract entail, and support reconciliation of the imagined/ideal concept of becoming a physician with the realities of practice

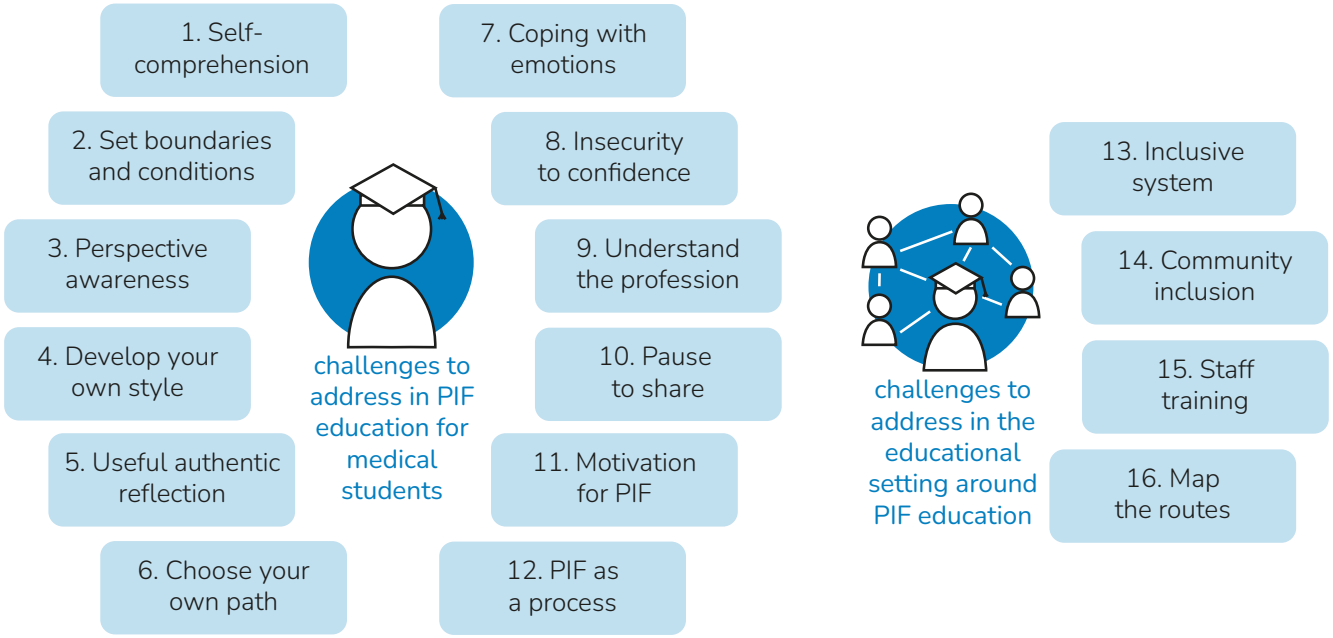


Figure 2.7: Overview of the challenges following from Chapter 2

2.7 Takeaways

10. **Pause to share**: Enable the student safely share experiences with others to find recognition in the stories of others and to address the struggles of being a resident.
11. **Motivation for PIF**: Motivate the student to work on PIF to become a good doctor by showing its usefulness for the student (and his/her patients) now and in the future, and by making the reasons behind the exercises clear
12. **PIF as a process**: Support the student in understanding PIF, especially seeing it as a lifelong process and not an end goal, and enabling him/her to track the progress

Challenges to Address in the Educational Setting Around PIF Education

13. **Inclusive system**: Motivate the system to make a small change in reducing hierarchy, allowing variety, embracing vulnerability, and supporting well-being
14. **Community inclusion**: Show the medical team in which a student is resident the value of welcoming and including the student, and provide tips and tools to do so
15. **Staff training**: Motivate and enable to staff to learn about PIF, how to best help students go through this process, how to deal with the uncertainty accompanying this process, and how to assess PIF
16. **Map the routes**: Provide the student with an overview of possibilities inside UMCU for personal development and a clear point of contact to go to when being stuck

Conclusion

Literature and interviewees brought forward 16 possible challenges to address in PIF education. Most challenges are about the more personal and soft sides of PIF. However, literature and interviewees described knowing who you are and who you want to be is not enough, as there is a system and culture preventing students to act in line with their desires. Therefore, it is necessary to also address the teachers, supervisors or broader system in order to support the PIF process of the medicine students.

This chapter has taken a deep dive into Professional Identity Formation (PIF) of medical students. Several key takeaways as well as requirements for the design can be extracted from the definitions, benefits, influencing factors, and challenges brought forward. The key take aways are described below, a first list of requirements can be found in Appendix 12.

- PIF can be seen as having **two sides**: 1) a **personal side** which is about the personal aspects you bring to the profession and use to make the profession your own, and 2) a **professional side** which is about understanding and internalizing the values, norms and behaviours of the profession. Literature focusses on the professional side, interviewees emphasise the need for attention on the personal side of PIF. They state the professional side receives currently too much focus and the **personal side is forgotten**.
- A **strong PI** means **understanding** what the **profession** expects from you, while **finding** your **own way** of being a physician. This entails knowing who you are, what you need and who you want to be as a physician.
- PIF is a **process** and not a goal. It goes on throughout your life.
- PI expresses itself in **interactions** and is formed via interactions. These interactions can be split up in three levels: 1) interactions with the **self**, 2) interactions with **others**, and 3) interactions with the **healthcare/ educational system**.
- **Stories** and debriefing via **reflection** play an important role in both forming and explaining your PI.
- **Time, motivation** and a **safe space** for both the students and staff are needed to enable PIF.
- PIF is not only about knowing who you want to be, but also about having the **skills and opportunities to act** in accordance with your PI in practice.
- There are many possible **challenges** to address in PIF education, both directions directly informing what or how education should be given and directions to support PIF of students around the educational setting.

3 PIF and Current UMCU Education

Before diving into the medicine curriculum of UMCU, this chapter first explains how medical education and the career that follows are regulated in The Netherlands. In describing the UMCU curriculum, specific tracks, courses and assignments related to PIF are pointed out as well as students' opinions about them. The input of teachers and students is combined at the end of the chapter to define challenges and gaps in UMCU PIF education.

Chapter Content

3.1 Approach
3.2 Medicine in The Netherlands
3.3 The UMCU Curriculum
3.4 Challenges in UMCU PIF Education
3.5 Takeaways

“In education, we now look at professional behaviour, including the expression the norms and values of the profession. That is why it is so important that the personal piece also comes forward. Otherwise, you’re just adapting.”

Coordinator coaches professional behaviour

3.1 Approach

First, medicine education in The Netherlands and the education at UMCU in specific were analysed based on desktop research and conversations with policy officers of the medicine curricula. Second, to really understand how the current UMCU education addresses PIF and if it actually leads to formation of a strong PI, coordinators and teachers of the courses were interviewed (see Section 2.1 for an overview of the interviewees), and classes were joined. Taking part in the education already provided a more objective view of what actually happens but to even better understand the effects, the opinions of students were gathered in several ways as a third method. Most importantly, a creative session with students was conducted in which plusses and minuses of existing PIF education were collected.

The full session script and materials can be found in Appendix 13. Besides, informal conversations with students while and after joining classes provided input. Finally, joining a student in her residency for one day gave the opportunity to see what the residents' responsibilities are, to see how others deal with them, and to elaborately talk with residents. All these student opinions are the input for the Student opinion blocks in Section 3.3. Before discussing these opinions of students, the general structure of medicine education in The Netherlands (Section 3.2) and the structure of the UMCU curriculum in general (start of Section 3.3) will be explained first.

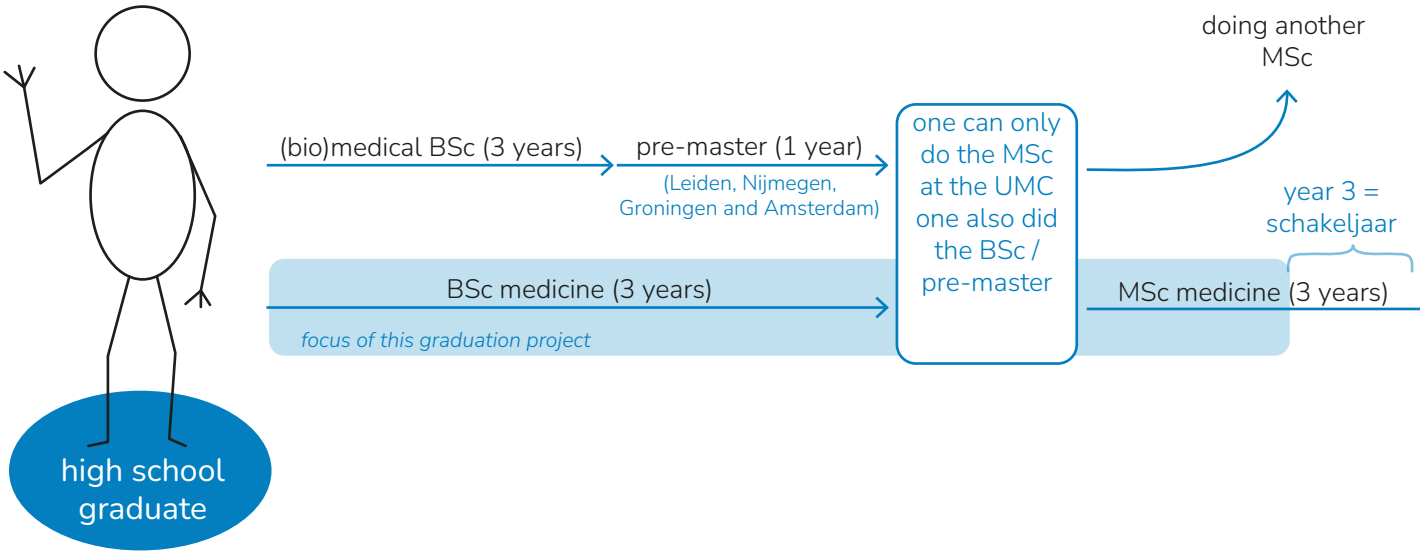


Figure 3.2: Possible trajectories to study and after studying medicine (arrows are not scaled)

3.2
Medicine in The Netherlands

In The Netherlands, the study medicine takes six years: three years BSc and three years MSc. After finishing the BSc medicine, a student can choose to go another (medical-related) master's or follow the MSc program at the same university as the BSc (so a student who has done his/her BSc medicine in for example Groningen cannot do his/her MSc in Utrecht).

The last year of the MSc medicine is called a 'schakeljaar' (transition year) as it supports the transition between student and doctor. After finishing the MSc, a graduate is called a doctor (Dutch: basisarts). While there are many possible futures, the most known route is becoming a medical specialist. During specialization, a doctor is called an AIOS and depending on the specialization it takes 3-6 years. However, it is not easy to get a place as AIOS and this competition leads to taking other jobs as a doctor (Dutch: ANIOS), having a role in clinical education (Dutch: AKO) or doing a PhD. A survey of UMCU students who finished their MSc medicine in the educational year 2020-2021 showed that 82% of the graduates planned to be an ANIOS directly after their studies and 3% an AIOS. Besides, another 9% planned to be an ANIOS later (UMC Utrecht, September 23, 2021). A survey among alumni approximately three years after their graduation showed 88% had been or were at the moment of the survey an ANIOS, and 28% an AIOS (UMC Utrecht, June 6, 2022).

There are many different directions to do one's specialization in, some better known than others. However, both medical students and general society know less about other options than specialization. The Royal Dutch Medicine Association describes a few options such as researcher, policy officer, consultant or teacher (KNMG, 2021). Figure 3.2 provides an overview of the possible routes just described.

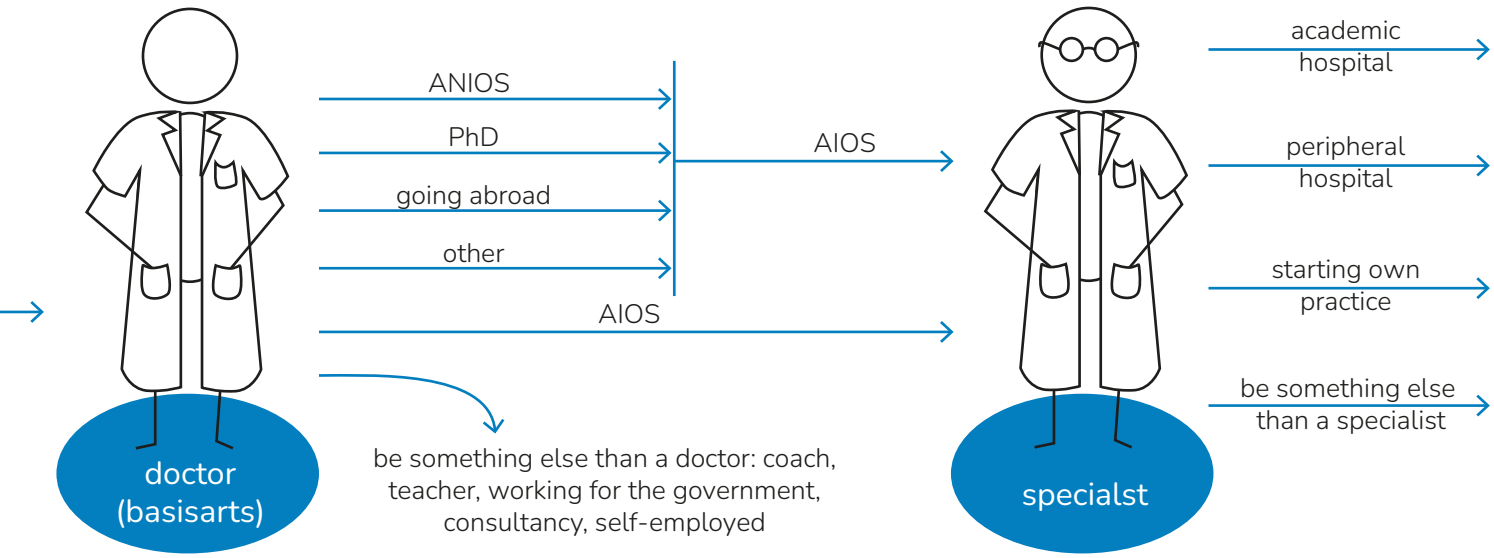


Figure 3.2: Possible trajectories to study and after studying medicine (arrows are not scaled)

3.3
The UMCU Curriculum

Both the BSc and MSc take three years and contain courses as well as residencies collected in Blok and LINK combinations. Most of the BSc consists of theoretical courses with a first round of residency taking place in Blok and LINK Green. The curriculum of the MSc is a 'carousel' curriculum, so every six weeks a new group of students starts a Blok and LINK (see Appendix 14). Each Blok+LINK is named after a colour and encompasses three specializations (for example, neurology, psychiatry and geriatrics for Blue), see Figure 3.3. Each LINK contains two return-days on which all students come back to the UMCU to reflect and learn more about the topics they are currently doing their residency in. Next to the courses and residencies, there are tracks providing assignments throughout the curriculum.

In the existing curriculum, PIF is addressed in two tracks, two collections of courses, residency (all LINKS) and a new possibility for master students called the Mentor Program. These six parts of the curriculum, their connection to PIF, and the opinions of students about them are described below. Figure 3.4 provides a visualised overview of most PIF assignments, more details can be found in Appendix 15. This graduation project does not address the 'schakeljaar' (third year of the MSc) as the goal of this year is quite different from the others and students are more seen as colleagues/doctors than as students, which is already implied in the name of the year.

Track: Tutorship

Place in curriculum Year 1 – 3 of the BSc

Tutorship is a track to support students in their journey through the BSc. A group of students is connected to a tutor, and students have to hand in assignments in the online portfolio. The coordinator is not pleased by the dual role the portfolio construction creates for the tutor: guider/supporter and assessor. She, as well as most other educational staff, desires Tutorship to be a track of personal support in the PIF process towards residency, with the assignments addressed elsewhere. This desire comes back in the opinions of students.

Student opinions

The students' opinions about the tutor support depended on their tutor. Some described the tutor as helpful and approachable, while others did not find it useful. All students desired to have the time and space to build more of a connection with their tutor and to share experiences and insights with the other students besides their tutor. Positive aspects of the portfolio assignments were the suggestion questions provided in the reflection assignments and the attention to working on one's CV. However, students stated there are too many assignments, the format often limits them in their reflection, and there is no structure or clarity about which assignments have to be done when.

> *Lots of administrative bullshit. Extremely long reports with mandatory points to address.*
>
> Fourth-year student

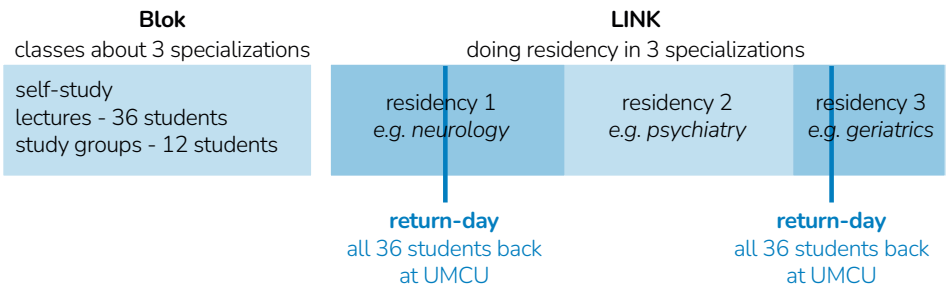


Figure 3.3: Schematic overview of the Blok and LINK structure

Course Collection: Public Health

Place in curriculum Year 1 – 3 of the BSc

The department of Public Health provides a broader understanding of health and healthcare than the pure medical view taught in the rest of the curriculum. There are three PIF-related courses from the Public Health department: a nursing internship at the beginning of the BSc, and two BSc electives addressing aspects such as lifestyle, social context or genetics. In the nursing internship students join a nurse working in the field of public health for two weeks. This contact with their future environment spurs PIF. The electives both help students to develop a moral stance and provide other career prospects than being a specialist.

Student opinions

To make sure all students could provide input in the discussion, no opinions about electives were asked. The nursing internship was evaluated relatively positively. Students mentioned it helped in better understanding the vulnerability and context of the patient, the role and work of other professions, and the complexity of care. However, they also thought the internship was placed too early in the curriculum and the course around it too demanding.

> *Good to look at healthcare more broadly than just 'doctor' and more in context. How do you (together with others) want to care for the patient in the best possible way?*
>
> Third-year student

Course Collection: Narrative Medicine (NM)

Place in curriculum BSc year 2 – MSc year 3

In NM education, literature and arts are used to reflect, learn, and create empathic understanding. The coordinator describes how using the arts as a case study enables different conversations, conversations full of vulnerability, open-mindedness and personal meaning. The track provides one elective and one course. In the elective Narrative Medicine, students reflect in an interdisciplinary setting of medical and humanities students on the role of stories in health care. Stories are not only a source of knowledge, but also a tool. During the elective, students collect all the stories and reflections they write in a personal portfolio. The third-year BSc course Medical Humanities teaches about the history, ethics and law of medicine, and aims to help students develop their moral stance.

Student opinions

In their NM portfolios, students describe they much appreciated the time and space in this course to explore, think and reflect. Besides, they valued the sharing of stories with peers and patients. Students' experiences of the course Medical Humanities varied. Where the tutor determined the appreciation of the Tutorship track, the teacher determines the influence of Medical Humanities on students' PIF. Some students describe teachers provoked group discussions and self-reflection, while others thought the course only provided theory about the history of medicine and the legal system. Again, students emphasised the value of sharing perspectives with peers.

> *The discussions in the study groups enabled us to learn from each other's stories.*
>
> Third-year student

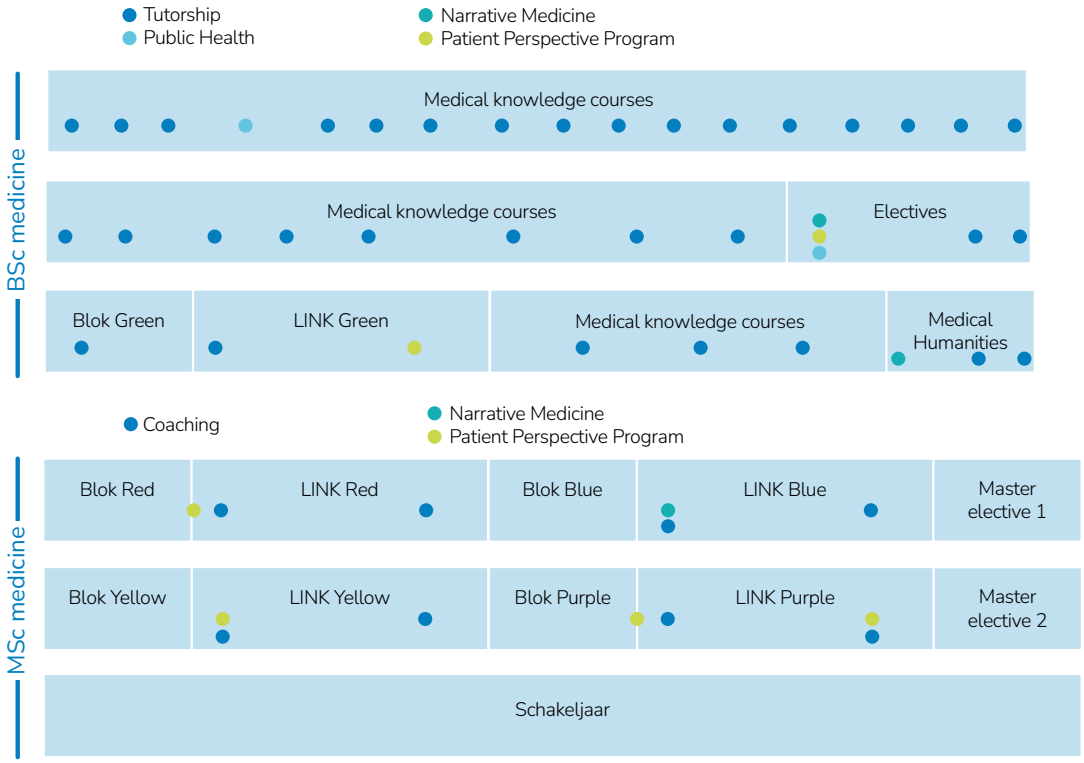


Figure 3.4: Visual overview of where in the curriculum PIF assignments are included

Track: Patient Persoective Program (PPP)

Place in curriculum BSc year 3 – MSc year 2

In PPP there is a focus on connecting and collaborating with the patient and reflecting on this cooperation. PPP has created one elective in the BSc, and six assignments during the Bloks and LINKs in the MSc. In the elective, a group of students is connected to a patient to find out what this patient would have wanted to know during the care trajectory and to create a tool providing this information in a suitable form. The MSc assignments provide the students with a variety of patient perspectives, some via films or patient fora, others via direct conversations with a patient.

Student opinions

Being exposed to the perspective of the patients, especially via direct patient contact, was seen as very helpful and enjoyable by students. However, they also stated all the assignments felt like a pile of extra exercises which had to be done and they explained that patients often mention problems the students already know of. Just as with the portfolio assignments from the Tutorship, students understood the goal and value of the assignment but did not have the time to appropriately do it.

> *It wasn't very new, the patient didn't feel seen because there are only nurses but I had already thought of that..*
>
> Fourth-year student

Residency

Place in curriculum BSc year 3 – MSc 2

At UMCU residencies are collected in LINKS. During every LINK, students have two return-days on which they get more classes, receive coaching and do the PPP assignments. The return-days (should) provide time for reflection and therefore growth. Between the first and second return-day, students write a reflection report. According to one of the coaches, students dislike this writing on beforehand but find it very useful afterwards. They especially value looking back to the reports in their final year to see how they have grown.

The residency itself provides contact with patients and the clinical environment, which has a large impact on PIF as mentioned in Section 2.4. Most often, residents get quite a lot of responsibility and are assumed to know and be able to do many clinical activities. However, the 'boring' and 'administrative' tasks also end up at the resident's desk. During residency, the online portfolio further filled with assignments and assessments related to PIF. Finally, there is a possibility (or sometimes obligation) for individual coaching on professional behaviour.

Student opinions

Even though students valued the residency experiences and explained it changed their view of being a doctor, there were lots of aspects to comment on. Students felt most restricted by the healthcare culture, stating they feel like they should continuously adapt while also being assertive. Besides, they perceive a lack of time to do their tasks, and a lack of support to really learn and grow. The busy schedule of the doctors also influences their role model behaviour. Students described their guiding doctors as desensitised and wished they would be more sensitive in contact with both the patient and the student.

> *The motto here is: 'Don't take care of yourself, take care of someone else.' If you take time for a break, work will only pile up and you'll be working until six o'clock again.*
>
> Fourth-year student

The students' opinions about coaching much depended on their coach, just as with the tutor. Coaching was sometimes seen as extremely valuable, and sometimes as s must. However, students with a good coach also stated they did not see coaching as a priority, which is why the reflection report often ends up at the end of the to-do list. Many students would like to talk with their peers without a coach. Still, as students described the peers in the coaching group were heavily influencing the atmosphere and thereby the possibility for self-growth, being able to choose your group mates was preferred for such peer-sharing moments.

> *If I score "at expected level" while I thought I was above it, I can't really discuss that with others because they have a different attitude. I close myself off to advice from others because I think 'I don't want to be like you at all'.*
>
> Fourth-year student

Students were extremely negative about the portfolio assignments. For example, due to the hierarchy culture they find it difficult to ask their supervisors to fill in the online assessments. The most hated aspect was the division of the professional behaviour assessment between 'below expected level', 'on expected level', and 'above expected level'. This division creates a competitive culture and makes students feel heavy pressure to adapt to the desires of their supervisor.

Mentor Program

Place in curriculum MSc

The Mentor Program is a relatively new form of support available for all students in the MSc. Within this program, a student is assigned to a mentor with whom (s)he can discuss doubts about his/her career and experiences in residency.

Student opinions

Most students did not know about the existence of this program. The few that did know about it often had bad experiences with the communication of the program. One student had sent an email several times but had never heard back and has contacted a mentor by herself now.

General Opinions about PIF-Related Education

During the conversations about the tracks, courses and assignments above, students also gave more general opinions about the education. Referring directly to PIF, students noticed everyone is at a different stage in the PIF process and they would like to be supported on their own level. Besides, they desired to be taught skills in how to stay close to themselves in practice.

> *How do you properly go against the doctor? How do you properly hold on to your identity? Identity clash arises mainly in practice, what can you do outside of that?*
>
> Third-year student

Teachers and students both mentioned that generally there is a lack of time and space for reflection, emotion and vulnerability. Often, information is given or an exercise is performed but the debriefing (especially emotional and open debriefing) is missing. Sometimes, students do not necessarily miss the debriefing on feelings but the debriefing about the usefulness of what they learn for their contact with patients.

> *Well, think about the experience it: what does it do with the patient and with you? Just 15 minutes of talking about the experience.*
>
> Fourth-year student talking about patient lecture in BSc

Students' biggest frustration or even hate was the huge amount of, in the students' opinion, random assignments they had to do. Students say they often lose track of what assignments need to be done. Besides, the pile of assignments and perceived randomness make them seem less important.

> *Minimise those assignments added to all courses everywhere. I get the goal, but they feel to me like 'oh yes, we'll throw something in there, we'll throw something in there', which make them seem unimportant*
>
> Fourth-year student

Two final negative comments are about the pressure felt by students. On the one hand, they feel this pressure because "society sees studying medicine as a privilege" and on the other hand because of the competition between students. When thinking of education they most liked, students mentioned either interactive education, such as the Communication and Attitude classes and doing things with one's hands, or enthusiastic teachers who use stories, keep their attention with random personal slides, and use visuals.

> *Performance pressure and competition culture are a problem in education. You have to be very strong to not to succumb to that.*
>
> Fourth-year student

Conclusion

Quite some education in UMCU aims to connect to PIF. There is already a tutor in the BSc, education about the perspective of patients and coaching where students reflect on frustrations and actions in the clinical context. However, in practice PIF-related education often results in a focus on desired behaviour and study progress. In such education, the staff mostly determines how the class is experienced and what the effect is on the PIF process of the student. Besides, the lack of time and pressure to perform (both in the healthcare and education culture) shift the focus of the assignments from personal growth to checking and showing off. There is a desire to share more with peers, but also to receive tips and tricks for being a resident and later a doctor in practice. Finally, it is important to provide clarity and structure in PIF-related education and assignments as such education is longitudinal and now perceived as randomly added.

3.4
Challenges in UMCU PIF Education

Clustering the insights gained about the curriculum, the opportunities mentioned by teachers, and the desires of students described above, 11 possible challenges arose (see Figure 3.5). These challenges describe the problems or gaps to address in UMCU PIF education. Each of them is briefly explained in this section, Appendix 16 provides a more elaborative overview and also compares the curriculum with the guidelines of Raamplan 2020. Just as the 16 possible challenges formulated in Chapter 2, the 11 challenges of Chapter 3 are either about the knowledge or skills of the students themselves, or the educational setting around them.

Challenges to Address in PIF Education for UMCU Students

1. **Dealing with the system and colleagues**: Teach the student how to deal with clinical uncertainty and how to interact with colleagues, supervisors and the system
2. **Stand up for yourself**: Support the student in defining his/her own opinion and in developing tools to come up for oneself
3. **Choose your own path**: Expose the student to different career perspectives and indicate where to get help in making career decisions
4. **Find your uniqueness**: Help the student find and include personal uniqueness in the profession and diminish the pressure to adapt
5. **Useful reflection for growth**: Teach the student how and why to reflect, while providing tools that allow flexibility for when and how to do it
6. **Time for being human**: Enable the student to share emotions, vulnerabilities, and mistakes
7. **Intrinsic motivation for PIF**: Help the student see the importance, usefulness and goals of PIF assignments
8. **Grow with peers**: Enable the student to connect, share, observe, reflect and discuss with peers
9. **Clarity and continuity**: Provide the student with an overview of the expectations of the university, the possibilities for support, and the logic behind the courses and assignments

Challenges to Address in the Educational Setting Around PIF Education in UMCU

10. **Adapt the culture**: Motivate the system to reduce the hierarchy and diminish pressure from society and university
11. **Staff education**: Teach the staff how to support students on their own level and how to create a connection with them

Conclusion

Analysing the curriculum resulted in 11 challenges to address in UMCU PIF education. Again, most of these problems and gaps are about the personal part of PIF. The challenges reflect the emphasis of students and teachers on making time for emotions, uncertainty, and real personal reflection. A gap which was mainly brought forward by students is enabling them to connect, share, observe, reflect and discuss with peers. Besides, the lack of clarity and structure are recurring problems.

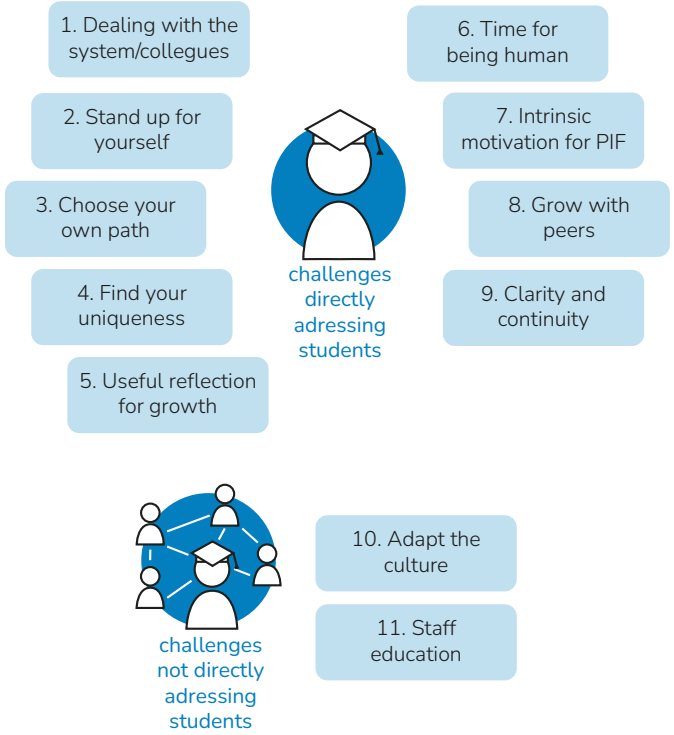


Figure 3.5: Overview of challenges following from Chapter 3

3.5 Takeaways

Chapter 3 has explored medical education in The Netherlands and UMCU in specific, mainly the connection between the education and PIF. The opinions of staff and students provide several key takeaways as well as wishes and requirements for the design. These wishes and requirements can be found in Appendix 12, the key takeaways are as follows:

- The teacher, tutor, coach and other **staff** heavily **determine** if and how a student's PI is formed.
- **Discussions** and the sharing of **stories** among peers are greatly appreciated by students, as well as teachers using stories as a form of education.
- There are **too many assignment**s, with **restricting format**s to follow. There is **too much focus on assessment** and a **pressure to perform**. Time, space and open reflection are required for PIF to happen.
- Students lack **clarity** about when assignments must be done, what the goal of each assignment and course is, and where to go for questions. This is especially true for the PIF-related assignments, as they are spread across the curriculum due to the longitudinal nature of PIF.

4 Stakeholders' Desires for PIF Education in UMCU

Chapter 2 described what PIF is, Chapter 3 what UMCU currently does to support it in their medical students. Now we move on to what the desired role of UMCU education in the PIF process of students is. This chapter first explains the methodology via which the desires of teachers and students are explored, after which the findings are presented.

Chapter Content

4.1 Approach
4.2 Findings
4.3 Takeaways

“We still try to convey too much of a one-size-fits-all doctors’ image in education. All the individual differences and the broad exploration of what really suits you are somewhat overshadowed. That’s simplified to which specialism suits you best.”

Child- and adolescent psychiatrist

4.1 Approach

The previous chapters provide an understanding of PIF, the UMCU curriculum, and the connection between PIF and the curriculum. Therefore, it is now desired to dig one level deeper and answer the following two research questions:

1. *What* PIF aspects would stakeholders like to be addressed in UMCU medicine education?
2. *How* desire stakeholders PIF-related education to be given?

To create a shared vision, it is desired to bring teachers and students together in one generative session. However, it can be doubted if students really express their true desires while being next to a medical specialist, as hierarchy is a structural aspect of the medical culture. Therefore, two sessions were organised: one with only (past) students and one with students, A(N)IOS and specialists. As the second session was deemed more important, this session followed the full Contextmapping approach and took three hours. The student session took half of the time and was not preceded by sensitizing materials.

Generative Session with Students

Goal: Find out what students desire from education in relation to PIF

To gain a good understanding of the students' desires, a generative session of 45 minutes was conducted with the same students as the session described in Chapter 3. First, the author shared her personal story as well as inspirational stories of doctors addressing how they use their characteristics and experiences in their work. Then, participants created their perfect form of education in groups of two or three with the use of a template (see Figure 4.1). Finally, students presented their utopia education and the results were discussed. The full session script and materials used can be found in Appendix 13. The recorded audio was transcribed verbatim and anonymised. Quotes addressing possible directions for what aspects education should address or how this should be done were collected from both the transcript and the materials generated during the session.

Figure 4.1: Participants defining their ideal PIF education

Generative Session with Mixed Stakeholders

Goal: : Find out how students, A(N)IOS and teachers collaboratively define PIF, what PIF aspects they think UMCU education should address, and how this education should be given

Designing for PIF education in the medical context requires collaboration with both teachers and (past) students. Therefore, three types of participants were invited: three medical specialists (teachers), two A(N)IOS (teachers and recent students), and two residents/fourth-year students (students far enough in their studies to reflect on the PIF process). This part of the research followed the Contextmapping approach which involves users as "experts of their experience" and generally consists of three steps (Sanders & Stappers, 2012):

1. **Providing the participants with sensitizing materials to help them form their opinion and collect memories about the topic**

In this study, the sensitizing materials helped participants to collect their thoughts about what they see as the professional side of PIF, and to think back about how personal events influenced their PIF. As each of the three types of participants is in a different stage in the PIF process, three slightly different sensitizing packages were made (see Appendix 17). Participants were given two weeks to fill in the sensitizing booklets, which were collected three days before the session.

2. **A generative session in which participants share their experiences and creatively express their desires**

The generative session took three hours. First, a PIF-knowledge baseline was set collectively by using the sensitizing materials as input, brainstorming and providing theory. After that, the desired role of education in PIF was determined in two groups using a student persona. The discussion of the personas led to the definition of six themes that formed the basis of a second brainstorm happening after a break. The conversation about the results of the brainstorm provided possible directions for the development of education. According to the preferences of the participants for a certain direction, three groups were formed. Each group explored a possible educational form or program supporting PIF in medical students. The results were presented and discussed, to end with a lunch. The exact script and the materials used can be found in Appendix 18. Figure 4.2 provides a glimpse of the tools and atmosphere in the session.

3. **Qualitatively analysing the data, most often via a thematic analysis**

The full session was transcribed verbatim and anonymised. Quotes were selected from this transcript, the sensitizing workbooks, and the templates and materials created in the session. These quotes and the quotes obtained from the student session were collectively clustered in several rounds until a set of themes was found that minimised the number of themes while still covering the variety of insights.

Figure 4.2: Creative session with mixed stakeholders

4.2 Findings

The results of the student session are described and shown in Appendix 19, those of the mixed stakeholder session in Appendix 20. From the transcript and materials of the student session 107 quotes were selected, the session and sensitizing materials of the mixed stakeholder session provided 343 quotes. All quotes were combined to find the themes stakeholders addressed when expressing their desires for PIF education in UMCU. 11 of the 21 themes found address stakeholder's desires for what PIF-related aspects should be addressed in education, 10 themes address the how. The 21 clusters are elaborately discussed in Appendix 21.

What PIF Aspects Would Stakeholders Like to be Addressed in UMCU Medicine Education

Clusters 1-11 describe *what* PIF aspects UMCU education should address according to stakeholders. In general, there is a considerable focus on the personal side of PIF, which is in line with the findings from Chapters 2 and 3. Knowing who one is and who one wants to be is are recurring aspects in several of the clusters. It is clearly part of *Providing personal direction* (cluster 1) but actually comes back in all clusters except for *The system first* (cluster 7) and *Expressing emotions* (cluster 10). For example, in *Attacking assumptions* (cluster 3) and *Stimulating individuality* (cluster 5) knowing oneself is the basis to decide what one's career path should be or where one wants to focus on in education.

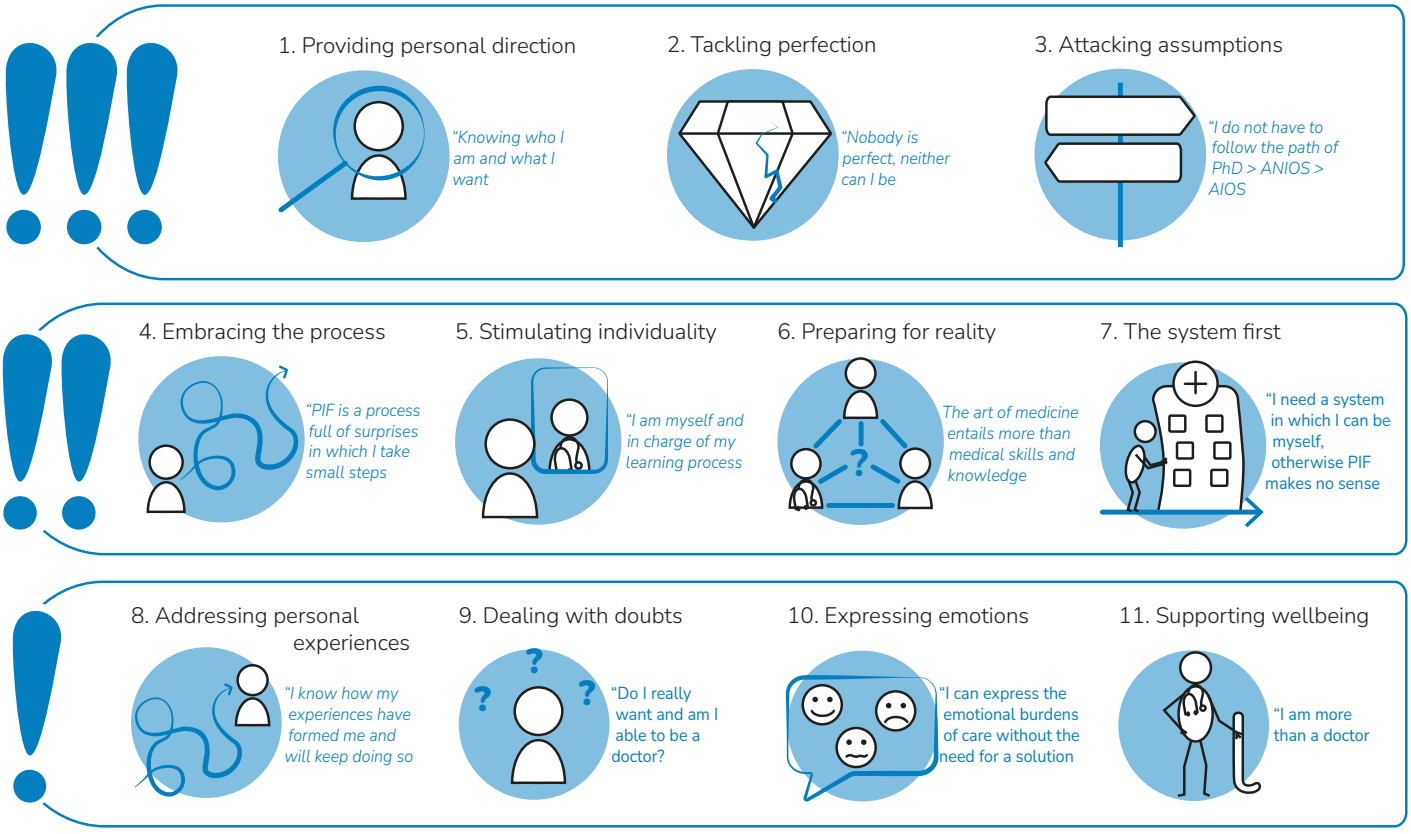


Figure 4.3: Participants desires for what PIF aspects should be addressed in education, with clusters deemed most important at the top (most important means containing the most quotes from the widest variety of participants)

Something which has not received much attention in previous chapters but comes forward in the sessions, is addressing assumptions. For example, participants state that students assume they need to know and like everything (cluster 2), that students have the assumption that there is a clear route to becoming a good doctor (cluster 4) and that students think that as doctors they need to fully solve the problem of every patients (see cluster 6). *Providing personal direction* (cluster 1), *Tackling perfection* (cluster 2) and *Attacking assumptions* (cluster 3) were deemed most important, even necessary, to address in UMCU education (see Figure 4.3). Removing the pressure was the main issue brought forward in the mixed stakeholder session.

> *We have to reframe the 'above expected level' to 'suits you well'. Because then you get a whole different feeling. Then people have the idea of oh this suits me, but I don't necessarily do it better than others, it just fits me better than others.*
>
> Fourth-year student

Just as in previous chapters, creating one's personal story and hearing the stories of others play a large role in the PIF according to the participants. However, they emphasised these stories should be imperfect, about feelings and without solutions.

> *I met someone who remains ANIOS for the rest of his life, I didn't even know that was possible. I thought 'holy moly at the BSc you only hear specialist this specialist that specialist specialist'. You never once get: I'm going to be a diving doctor, or I'm going to inspect pilots or something.*
>
> Fourth-year student

Still, participants also mentioned aspects not related to the personal side of PIF. For example, *Preparing for reality* (cluster 6) is about stakeholders' desire to teach students complexity thinking and collaboration skills. Besides, some participants were anxious that supporting the personal side will result in students knowing what they want and who they want to be, while being in a system that does not allow such individuality. Thereby, some participants state, students will only feel worse. However, not everyone agrees. Especially A(N)IOS and specialists stated that knowing what one wants can help in creating the right work setting. Nonetheless, a possible design direction is addressing the system (cluster 7).

> *That you can also say: 'I'm not going to be a surgeon, but I really want to use this residency to grow further as a doctor in these areas'. Because now you mainly have: 'I have to shine during my talk, and I have to be the first to raise my hand when asked who is going to OR, and dare to ask that one question when I am sterile'. You get very unreal work from that.*
>
> AIOS

Conclusion

Participants desire UMCU education to address the personal side of PIF, as the professional side already receives enough attention. Supporting students to better understand themselves, or to attack assumptions such as 'I have to be perfect' and 'I have to become a specialist in the hospital' were deemed most important. However, there are also clusters addressing the professional side, and a cluster addressing the healthcare system instead of students.

How Desire Stakeholders PIF-Related Education to be Given?

Besides PIF-related themes, participants mentioned what they miss and like in existing education thereby indicating their requirements and wishes for how PIF education should be given (see Figure 4.4). Some of these aspects are very concrete, while others are more about the atmosphere or feeling needed to be able to deal with one's PIF process. Many hows brought forward by the participants are related to time and pressure (for example, cluster 12 – *Time and rest* and cluster 15 – *Time together*), the atmosphere in the group (for example, cluster 12 – *Feeling safe and connected* and cluster 16 – *Positive atmosphere*), being practical and clear (for example, cluster 14 – *Clarity and structure* and cluster 19 – *Make it concrete*), and focussing on the student as an individual (for example, cluster 17 – *Not long but open and personal* and cluster 20 – *Fit the individual*).

> *When doctors ask patients: 'tell me what can I help you with?' Then within 30 seconds the main problem told, but if you don't wait 30 seconds, which doctors very often don't do because they start asking questions, it takes a very long time until you get to the core. So maybe this should also just be a conversation in which you sit down and say: 'tell me'.*
>
> Medical specialist

Working together or hearing stories of others was mentioned several times (for example cluster 15 – *Time together* and cluster 19 – *Make it concrete*). Most hows address the staff or the educational system. Participants state that PIF should be clear and structured (cluster 14), teachers need to create a positive atmosphere (cluster 16), classes must use stories and examples (cluster 18), there must always be a connection to clinical practice (cluster 19), and preferably patients should be involved (cluster 21).

> *It's often very unclear what you all have to do. You have this assignment and this assignment, where the fuck should I start? I have to do my residency too, you know? Extremely irritating.*
>
> Fourth-year student

Conclusion

Just as in previous chapters, feeling safe and connected are seen as a necessary condition before one can work on the personal side of PIF. Besides, the lack of time and clarity in the existing curriculum should not come back in PIF-related education. The final most important how was going through PIF together, which is in line with the finding of Chapter 2 that PIF arises in interactions. Participants also mentioned more concrete tips such as including the patient and using stores or examples.

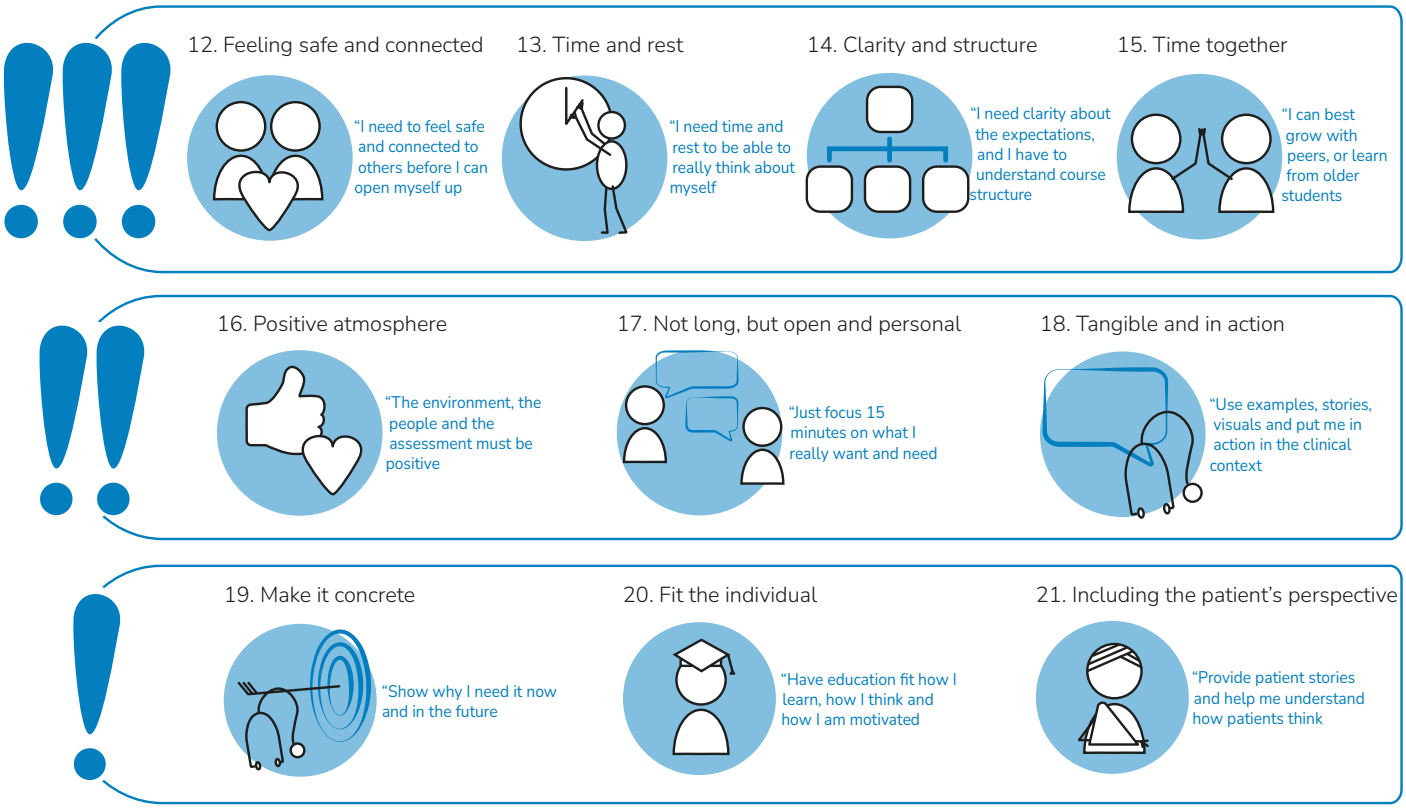


Figure 4.4: Participants desires for how PIF education should be given, with clusters deemed most important at the top (most important means containing the most quotes from the widest variety of participants)

4.3 Takeaways

The clusters describing how PIF education should be given can be directly translated to wishes and requirements for the design. The clusters describing what education should focus on also provide some wishes and require-ments, which can all be found in Appendix 12. The main takeaways from this chapter are described below.

- There is a strong desire for attention to the **personal side of PIF**. The two main topics are **discovery of the self** and **attacking assumptions** about what you need to be a doctor or good student (including complexity thinking, humanity, no perfection, vulnerability etcetera). There is a strong desire to sustain individuality and authenticity, and a need to support this in students.
- Students experience a lot of **pressure** from the many assignments, assessments and expectations. Peers, supervisors and the way in which the existing education is designed create the **feeling you must be flawless** and the best in everything.
- The basis for PIF is **awareness of the self**, and **feeling safe and connected** enough to grow further.
- Sharing **stories** is key, but these stories must be human, vulnerable and **imperfect**.
- There is a desire for **clarity and structure**, both about the course and assignments itself as well as about the possibilities outside education for personal or career support.
- Besides a desire for knowing and understanding, there is a desire for **competence** and making a link to **clinical practice**. For example, having the skills to stay close to yourself in the healthcare culture.

5 Synthesis

Each of the previous chapters brought forward a list of key takeaways, wishes and requirements. Therefore, this chapter begins with combining all these insights. Besides, Chapters 2-4 resulted in challenges and desires for supporting the PIF process of students in medicine/UMCU education. These challenges and desires are clustered into possible directions to design for PIF education. These directions are taken to the next chapter in which they are used to formulate the design goal.

Chapter Content

5.1 Approach
5.2 Synthesis of Key Takeaways, Wishes and Requirements
5.3 Selection of PIF Challenges and Desires

“Nobody is perfect and everybody is unique, the problem is that people don’t realize that. And telling your own story is kind of the solution for it. So by telling your own story, you also realize that not everybody is perfect and everybody is unique.”

Fifth-year student

5.1 Approach

Each of the previous chapters ended with three types of insights:

1. Challenges and desires for PIF education
2. Key takeaways
3. Wishes and requirements (W&R)

As there is an overlap in these findings among the different chapters, it is valuable to combine the insights. The key takeaways and W&R are useful to find out which direction to choose, as they describe what has been found most important or even a must. Therefore, a synthesised list of W&R for Part A, as well as a summary of all the key takeaways was made. Thereafter, all PIF challenges and desires defined in Chapters 2 – 4 were combined, resulting in 11 clusters. The next sections describe these synthesised findings.

5.2
Synthesis of Insights

Several of the key takeaways of Chapters 2-4 describe similar insights. Therefore, all takeaways are taken together and summarised below.

- PIF can be seen as having two sides: 1) a **personal side** which is about the personal aspects one brings to the profession and uses to make the profession one's own, and 2) a **professional side** which is about understanding and internalizing the values, norms and behaviours of the profession. There is a strong desire for **attention to the personal side** of PIF in medical education. The main topics brought forward are the discovery of the self, developing a personal way of being a doctor, and attacking assumptions about what a good doctor is (know everything, solve all problems etcetera).
- PIF is a **process** and not a goal. It goes on throughout one's life and can take unexpected turns and twists.
- There is a desire for **clarity and structure**, both about the courses and assignments themselves as well as about the possibilities outside education for personal or career support.
- PI expresses itself in **interactions** and is formed via interactions. Sharing imperfect, human **stories** and debriefing via **reflection** or **discussion** play an important role in both forming and explaining one's PI.
- In the BSc, students are still working on being a student. **Residency** spurs the PIF process.
- Students experience a lot of **pressure** because of the many assignments, form of assessment, and restricted formats. The basis for PIF is awareness of the self and **feeling safe and connected** enough to grow.
- Medical/educational staff and the system's **culture** of performance, no self-care, working hard and being a superhuman are part of the problem. PIF is not only about knowing who one wants to be, but also about having the **skills and opportunities** to act in accordance with one's PI in practice.

Furthermore, Chapters 2-4 resulted in a list of W&R (see Appendix 12). While synthesising the W&R, eight themes appeared:.

1. **Student in charge**: containing W&R about agency and providing the possibility to choose.
2. **Address assumptions**: W&R focussing on assumptions which counteract the PIF process of students, most importantly thinking PIF is a goal (not a process) and thinking there is one perfect type of doctor.
3. **Inclusivity**: W&R enabling every student (and teacher) to follow an individual PIF process.
4. **Practical setup**: a range of W&R describing how education should be given, for example via sharing stories and in the form of longitudinal support.
5. **Atmosphere**: W&R to make sure the right atmosphere is created for PIF to occur, including feeling free and safe.
6. **Staff**: W&R stating that preferably there is no staff involved, and if staff is needed under what conditions.
7. **Theory, motivation and assessment**: W&R connected to the structure and regulations of the education to be created.
8. **Connection to original goal**: W&R following from the overarching project goal and the fact that the client comes from the psychiatry department.

All W&R belonging to these themes are described in Appendix 12. The next section synthesises the challenges and desires which were defined in Chapters 2-4.

5.3
Synthesis of PIF Challenges and Desires

Chapters 2 and 3 brought forward several PIF-related challenges and gaps to address. Chapter 4 showed the desires of stakeholders for PIF-related education. Combining these challenges and desires brings forward 11 clusters which describe possible directions to design for within PIF education. For example, the literature and interviewees of Chapter 2 stated that an important aspect of PIF is to know your boundaries and conditions for providing care (challenge 2), the analysis in Chapter 3 showed that the current curriculum does not prepare residents to stand up for themselves in clinical practice (challenge 2) and the participants of the session described in Chapter 4 stated that attention needs to be devoted to the well-being of students (desire 9). Together, these challenges and desire form direction 4: designing to support students in finding their personal balance and boundaries, and in developing skills to guard these boundaries in practice. How all directions arise from the challenges and desires of Chapters 2-4 is shown in Appendix 22. Figure 5.1 shows these final 11 directions, which are briefly explained below.

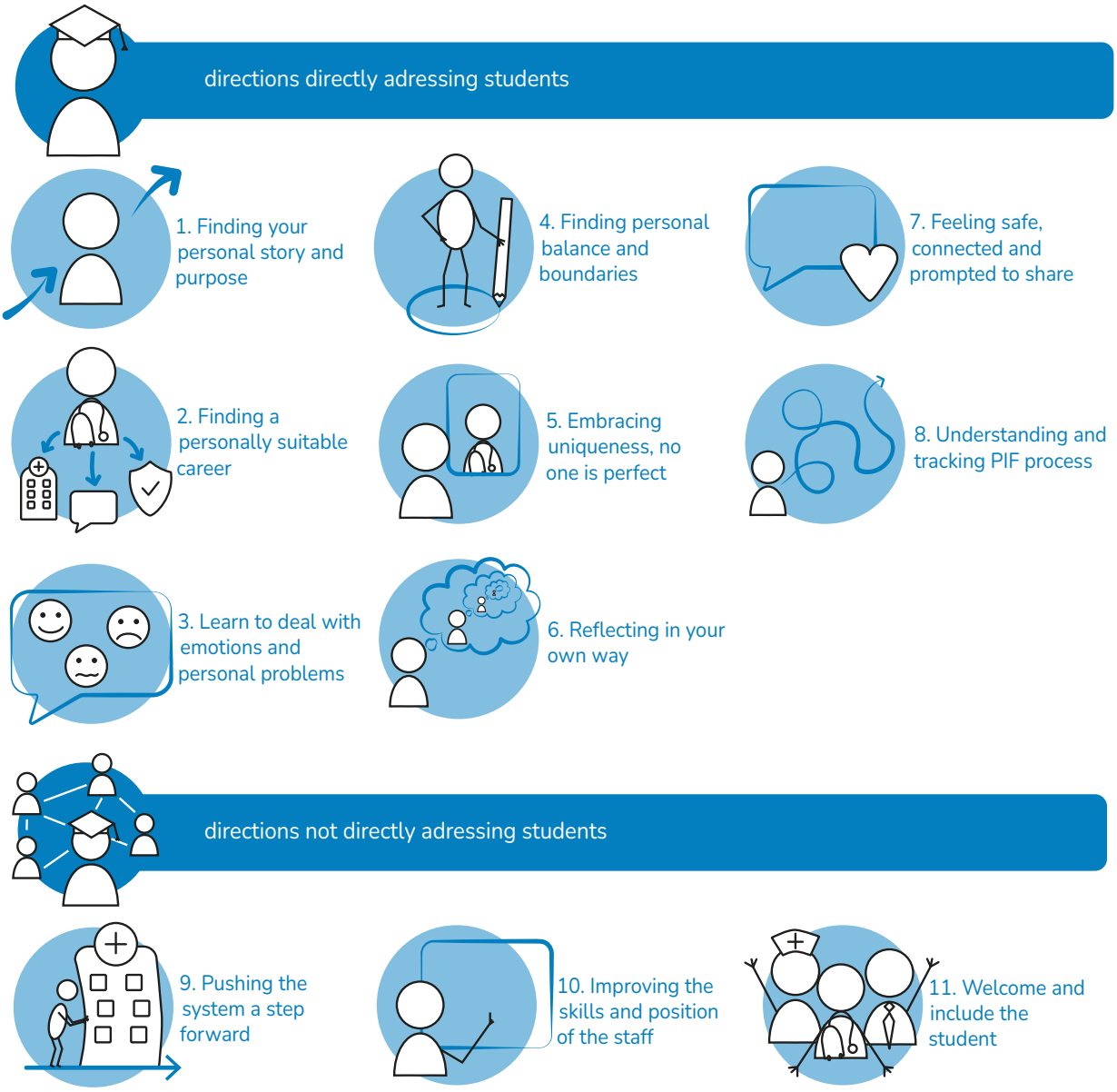
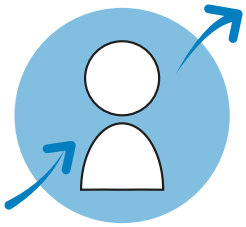


Figure 5.1: Final 11 directions

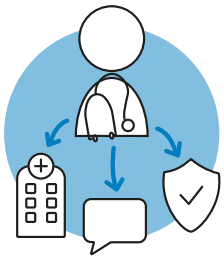
Direction 1: Finding your personal story and purpose



Design to support students in understanding themselves and defining where they want to go to

- Create a coherent life story: understanding who you are, what your strengths and weaknesses are, and how you have been shaped
- Know what you want to learn
- Find a personal way of being a doctor, develop a personal style and authenticity
- Discover what you want to mean (as a doctor) for the world, find a personal direction and purpose

Direction 2: Finding a personally suitable career



Design to help students understand what all the career possibilities for a medical professional are, and find their path

- Know what career possibilities there are outside the hospital and even outside the medical sector
- Follow a career path and find a profession that suits you
- Feel free and supported to choose what fits you best

thoughts of students now optimal result of design

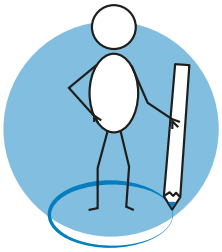
thoughts of students now optimal result of design

Direction 3: Learn to deal with emotions and personal problems

Design to provide students with the space to share their emotions and personal problems, and to learn how to deal with them

- Share emotions without solutions being brought up
- Value and embrace the emotional sides of care
- Learn to deal with personal problems while working as a medical professional

Direction 4: Finding personal balance and boundaries



Design to support students in finding their personal balance and boundaries, and in developing skills to guard these boundaries in practice

- Broaden your identity, do things apart from being a doctor
- Explore your own boundaries, and learn to recognise and indicate them
- Develop skills and tricks to take care of yourself in the healthcare system
- See the importance of taking care of yourself now and in the future

thoughts of students now optimal result of design

thoughts of students now optimal result of design

Direction 5: Embracing uniqueness, no one is perfect

Design to make students aware of their assumptions and internalised expectations, provide space to share them, and promote self-confidence and self-compassion to grow from them

- Become aware of and discuss assumptions and expectations
- Be open about doubts and mistakes, seeing no one is perfect
- Develop self-confidence and self-compassion in the process of becoming a doctor
- Develop enough self-confidence to stay a little bit more yourself and recognise you are allowed to change the mass identity

Direction 6: Reflecting in your own way

Design to learn students to reflect authentically, and to provide students with the space to reflect in a way that suits them

- Know what possible approaches for reflection are
- Find a reflection method that personally suits you
- Have time to stand still and reflect
- Understand the usefulness of reflection skills now and for the future

thoughts of students now optimal result of design

thoughts of students now optimal result of design

Direction 7: Feeling safe, connected and prompted to share

Design to invite and support students to share experiences and insights in a safe and constructive manner

- Create a safe and positive environment
- Get to know the others and feel connected
- Share experiences and problems with peers and older students
- Put experiences and feedback into perspective with the help of others

Direction 8: Understanding and tracking the PIF process

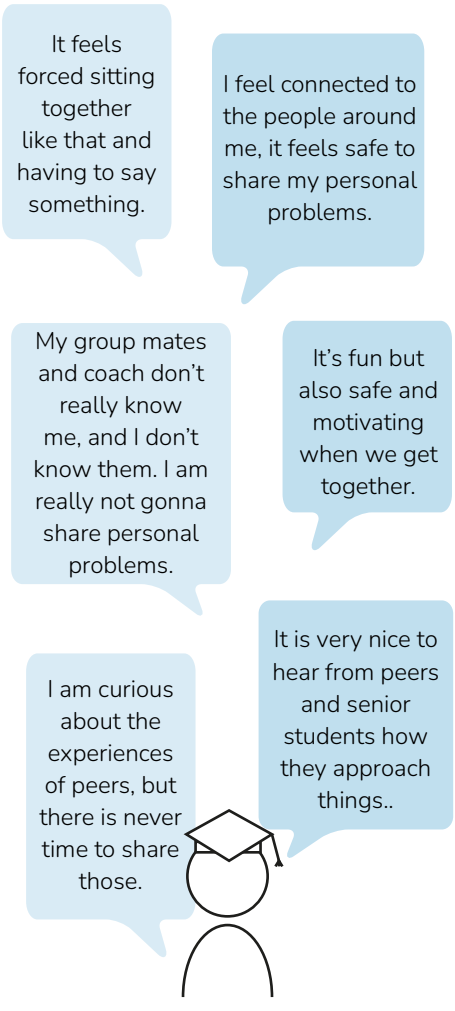
Design to help students (and staff) understand PIF, why it is important and what their individual process looks like

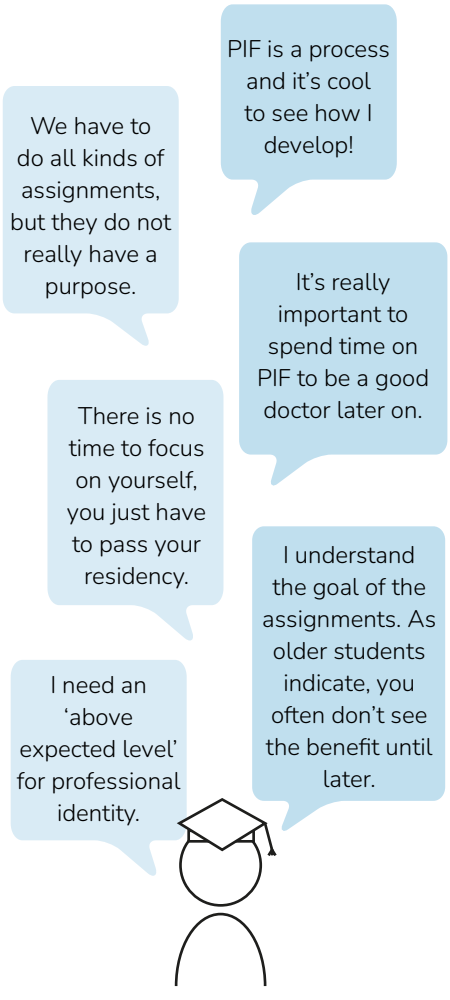
- Understand PIF, especially seeing it as a 'bumpy process'
- Know why PIF is important for yourself (now and in the future) and the patient
- Trust the process
- See your progress

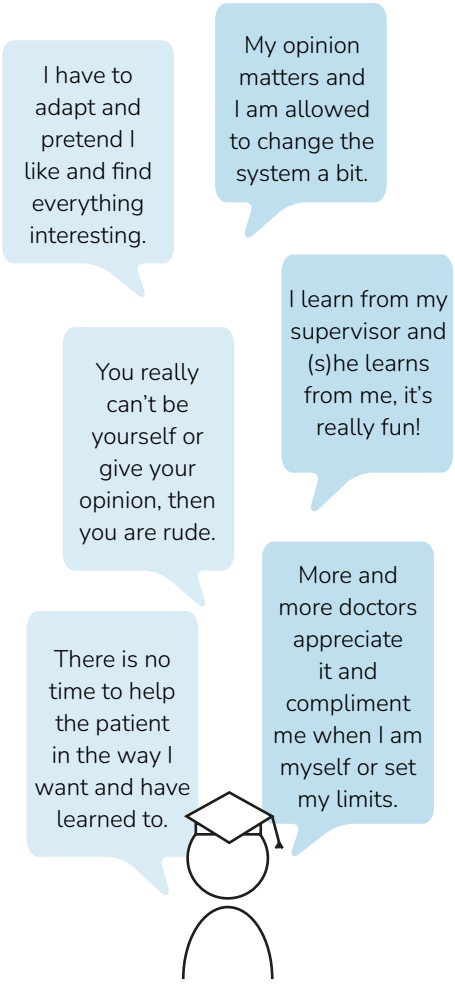
Direction 9: Pushing the system a step forward

Design to give the system a push in the right direction, showing the benefits of time and attention for personal growth

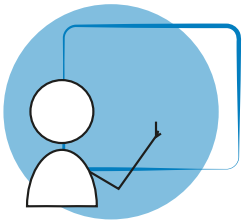
- Create awareness of PIF and its benefits
- Decrease the pressure to perform and to be a 'superhuman'
- Increase equality between residents and other employees
- Provide opportunities to share and learn from others in the hierarchy
- Create the opportunity to develop yourself and to provide care in the way you want







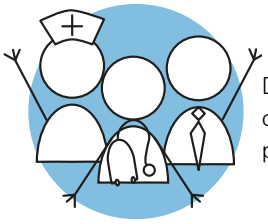
Direction 10: Improving the skills and position of the staff



Design to provide staff with the motivation and skills to appropriately support students in their personal PIF process

- Know how to deal with emotion, insecurity and vulnerability
- Have the tools to recognise and appropriately support students in their PIF process
- Have basic coaching skills
- See the fun and value for oneself, the system, and the student of supporting the students' PIF process
- Improve classes with tips directly from the students

Direction 11: Welcome and include the student



Design to show supervisors the value of supporting the resident well, and providing tools to do so

- Understand that supporting the personal growth of the resident does not have to take much time, but results in better results of their work and increased motivation
- Be motivated to support the student, for example by looking back at your time as a resident
- Welcome the student to the department
- Be open and curious about the insights of the resident

thoughts of students now optimal result of design

thoughts of students now optimal result of design

6 Design Goal

Chapter 5 synthesised all findings addressing the current knowledge and status in PIF education. This chapter shifts focuses on what will be designed, starting with evaluating the directions proposed in Chapter 5 with stakeholders. This evaluation, combined with the key takeaways from the previous chapter, lead to the definition of the design goal. Since the design goal explicitly states the use of storytelling for personal identity exploration, the chapter ends with a brief explanation of the connection between identity and storytelling.

Chapter Content

6.1 Approach
6.2 Selection of Directions
6.3 Design Goal
6.4 Storytelling and Identity

“What kind of family do you come from? Start with that, for example, then deeper and deeper. What personality traits do you have? Deeper and deeper again.”

Psychologist

6.1 Approach

The previous chapter combined all research insights into 11 clusters of challenges and desires. Each cluster describes a possible direction addressing the overarching goal of this project (described in Section 1.3):
To support UMCU medicine students in their Professional Identity Formation to prepare them for the healthcare challenges of the future.

Before a final design goal could be formulated, a further selection of the directions was needed. Therefore, the directions were evaluated with a medical specialist (course coordinator), AIOS and three fifth-year students in a 1-hour session. After a short introduction, participants ranked the directions in groups of one or two (see Figure 6.1) and came up with boundary conditions for the direction they selected as first place. The script and materials used are shown in Appendix 23. The full session was transcribed verbatim and anonymised. Quotes from the transcript and generated materials were analysed, showing how several directions could be combined. Together with the research findings from Chapters 2-4, a design goal was formulated. The next section elaborations the selection process, Section 6.3 describes the design goal following from it.

Figure 6.1: Participants ranking the directions

6.2
Selection of Directions

The 11 directions were evaluated with stakeholders to select and/or combine them into a final design goal. This section provides a summary of the main insights, with more details Appendix 24. According to the participants, three of the 11 directions are already addressed by others: Exploring career possibilities and suitability (2), Finding personal balance and boundaries (4), and Welcome and include the student (11). All participants agreed that a combination of Exploring your personal story and purpose (1) and Embracing uniqueness, no one is perfect (5) is most needed and desired in the curriculum. Participants stated that the biggest current problem is the focus on perfection, assessments and being the best. They prefer to shift this focus towards individual uniqueness, which can be done by exploring one's personal story and purpose.

> *Not every student should have to follow the standard curriculum and become a kind of standard doctor. The realisation that not everyone is perfect is most needed, but you do that by choosing your own narrative and direction.*
> Fifth-year student

Three of the six remaining directions were seen as boundary conditions, allowing students to explore and develop their uniqueness. According to the participants, without Feeling safe and connected (7), a student will not open up; students should understand the value of PI (8) before they will take part in education about their uniqueness; and Improving the skills and position of the staff (10) was mentioned as the biggest issue in current subjective and personal education. Sharing emotions (3) and Reflecting in your way (6) were seen as tools for developing and sharing one's unique story. The only remaining direction, Pushing the system a step forward (9), was seen as a consequence: the system will shift a bit when education focuses enough on personal stories and uniqueness. Besides ranking the directions, participants described five prerequisites for stimulating personal uniqueness:

1. Focus on the student as a person and not as a resident
2. Start low key with more passive education
3. Provide the education during residency, not in the BSc
4. Promote reflection during class, not only homework
5. Take into account that working on oneself can be scary, for example by allowing students to choose if they want to take their personal insights to clinical practice or not

> *If we do this, there should also be follow-up steps for how to deal with it.*
> Fifth-year student

Conclusion

Evaluating the 11 directions with stakeholders showed that education addressing PIF should allow students to develop in their unique way using their personal strengths. Besides, it should decrease the culture of perfection, assessment, and being the best. Instead, there should be a focus on uniqueness which can be sparked by exploring one's personal story. For such education to succeed, a safe space to share, educated staff and something to motivate the students are required. Figure 6.2 provides an overview of how these insights relate to the PIF directions.

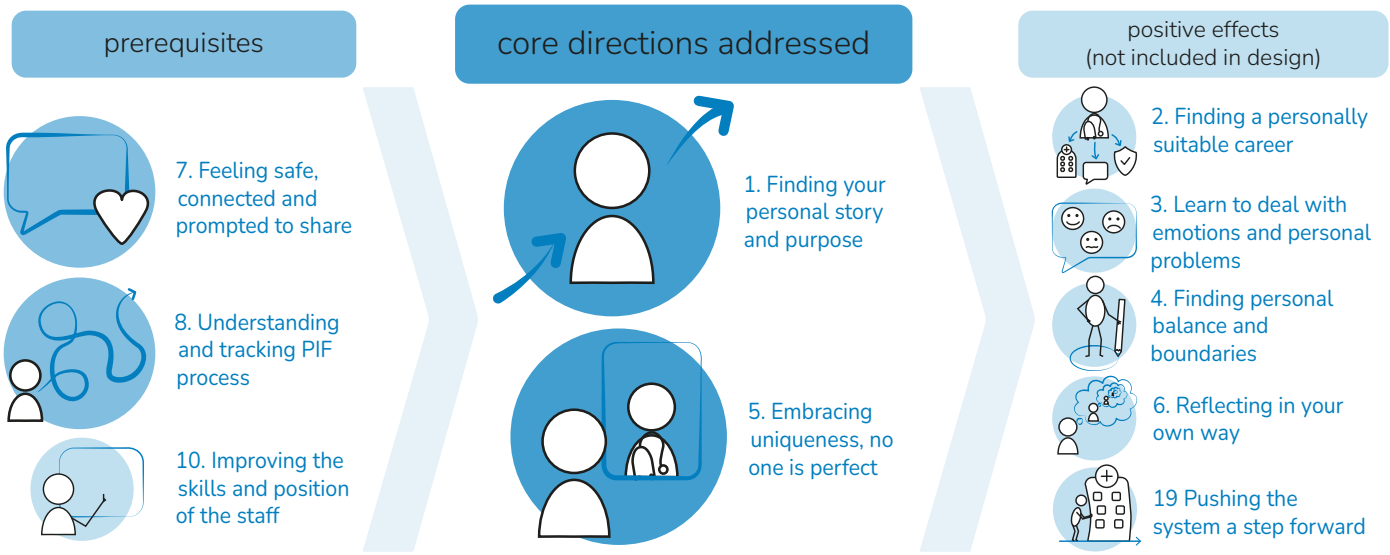


Figure 6.2: Design directions to be included in the design

6.3
Design Goal

The combination of directions and the key takeaways summarised in the previous chapter were taken into account when defining the design goa. The final design goal is the following:
Creating an **educational module** to support UMCU students throughout their **residencies** in discovering and developing the **personally unique part of their Professional Identity,** via exploring and sharing **personal stories** in a **safe** and **stepwise** process.

This design goal states whom to design for, what the design aims to achieve and how this roughly should be done. Each of the aspects will briefly be discussed below.

Who: Residents

Besides the participants of the direction selection session, literature (Hinkle & Drew, 2020; Orsmond et al., 2022), interviewees and participants of other sessions state that PIF can best be supported when students do their residencies. Only then, students are deemed mature enough to think about such personal topics and the contact with the clinical environment sparks the doubts and struggles that accompany PIF. The transition from 'student' to 'resident' can be used to motivate students to work on PIF. In the existing curriculum, students do their first residency in the third year of the BSc (Blok and LINK Green) and continue their residency during the first two years of their master's. Therefore, this is where the design will be integrated. The final year of the MSc (schakeljaar) could support students in further integrating their professional and personal sides. However, this is outside the scope of this graduation project.

What: Discovering and Developing the Personally Unique Part of PI

PIF consists of integrating a personal and professional side. Unlike the literature, all interviewees and participants stressed the need for more attention to the personal side of PIF. In the current UMCU curriculum, the professional side is already addressed, even though often unconsciously. However, the personal side is missing and without this, integration of the two sides into a PI is not possible. Exploring your personal uniqueness means answering questions such as: 'What are my strengths and values?', 'Why do I behave as I do?', and 'What makes me me?'. By focussing on the personally unique part of PI, this thesis also aims to shift the focus from performing and being the best to finding what suits you well and discovering how you work best. Hence, the education will support the well-being of the students. This approach was brought forward during the direction selection session described in Section 6.2, but also by the participants of the mixed session who desired to replace the assessment of 'above expected level' into 'suits you well'. Thereby, they shift the focus from performing to exploring what suits you. Besides, knowing who you are helps in choosing a career path and patients ask for authentic and human doctors (see Chapter 2). A more elaborate overview of the benefits of personal exploration can be found in Appendix 25.

How: Stories and Stepwise Process

Literature indicates interaction is important for PIF (Orsmond et al., 2022; Rees & Monrouxe, 2018), and interviewees and participants express a desire to share experiences. The education to be developed should therefore include the possibility to share. Such sharing should occur in a safe environment and in the form of stories, since the results above and Chapters 2 and 4 showed that stories fulfil a key function in PIF. Besides, three main insights indicate that the design should be a stepwise process. First of all, Chapters 3 and 4 demonstrated a desire for clarity and concreteness, as well as continuity in education. Secondly, the direction ranking session showed a need to start low-key and have students slowly reflect on more personal aspects. Thirdly, the literature mentioned the usefulness of frameworks for PIF education (Cruess et al., 2015; Lewin et al., 2019; Maitra et al., 2021).

For the stepwise process, it is useful to have a framework defining the steps or phases involved. The focus on exploration and storytelling connects the design goal to framework 4 described in Section 2.5, again depicted in Figure 6.3. The usefulness of stories in exploration and commitment is explained by McLean and Pasupathi (2012). They describe that narrative is the natural means for exploration and that having a personal story results in stronger and longer-lasting commitments. This narrative theory combined with the exploration and commitment process described by Marcia (1966) resulted in framework 4. However, the findings above indicate that exploration cannot happen before students are motivated and feel safe enough to participate in personal education. Therefore, two phases are added to framework 4 resulting in the following (see Figure 6.3):

1. Be hooked
Arouse curiosity and motivation among students to work on themselves. Stories of specialists, personal experiences or seeing differences in, for example, personalities and communication styles among peers may arouse curiosity.

2. Feel safe
Create a feeling of connectedness and security before asking students to open up. For example, support students in getting to know each other, be open about the fact that the process is scary and insecure, or mention possible forms of follow-up support.

3. Explore
Support exploration of more concrete personal aspects such as competencies before diving into values and purpose. These explorations should be open and creative, and can best happen by sharing stories among peers.

4. Evaluate
Allow students to choose what to do with their personal insights and help them to connect their insights to clinical practice. If this is who you are, what do you need in your work environment? Or how do you remind yourself about your uniqueness? Debriefing and reflection help in making small decisions and commitments after each exploration.

5. (Repeat)
PIF is a lifelong process, it is about making iterations and steps. New experiences, changing contexts or shifting desires may change one's insights and desired PI.

The four phases can serve as a foundation for the educational module, supporting the design process as well as the understanding of the module's architecture by staff later on. Following the four phases in the module makes sure students will participate in the education (steps 1 and 2) and take concrete insights with them after it (step 4). Besides, following the four phases in each class brings structure to these lessons. Therefore, the full architecture of the module to be designed will look like what is shown in Figure 6.4. This architecture supports the educational developers, staff, teachers, students and any others involved.

Conclusion

The design goal for this graduation project is to create an educational module that supports UMCU students throughout their residencies in discovering and developing the personally unique part of their PI, via exploring and sharing personal stories in a safe and stepwise process. The four phases of this stepwise process are 1) be hooked, 2) feel safe, 3) explore, and 4) evaluate. In the third phase, explore, students should be guided to gradually answer more personal questions and each class follows the four phases as well. As stories play an important role in each phase, the next section further explores the connection between storytelling and identity.

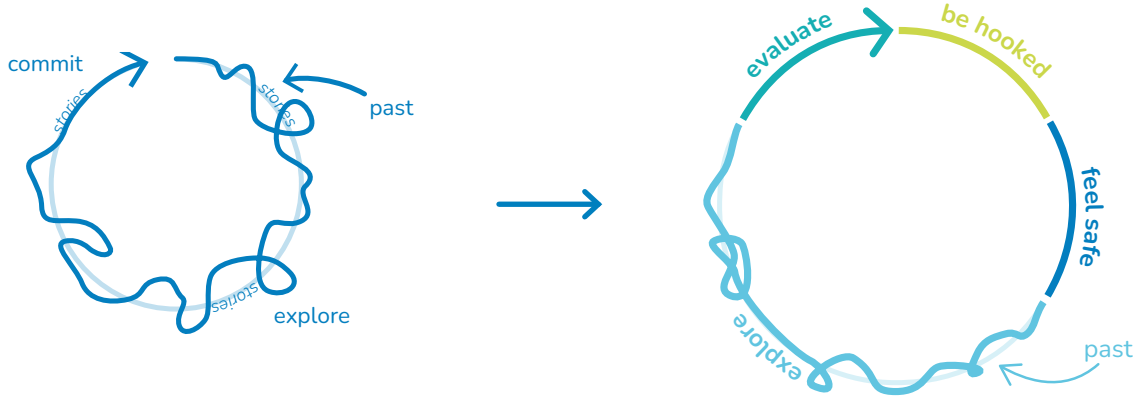


Figure 6.3: Framework 4 based on Marcia (1966) and McLean and Pasupathi (2012) combining identity and narrative theory (left), and the four phases for PIF-related education (right)

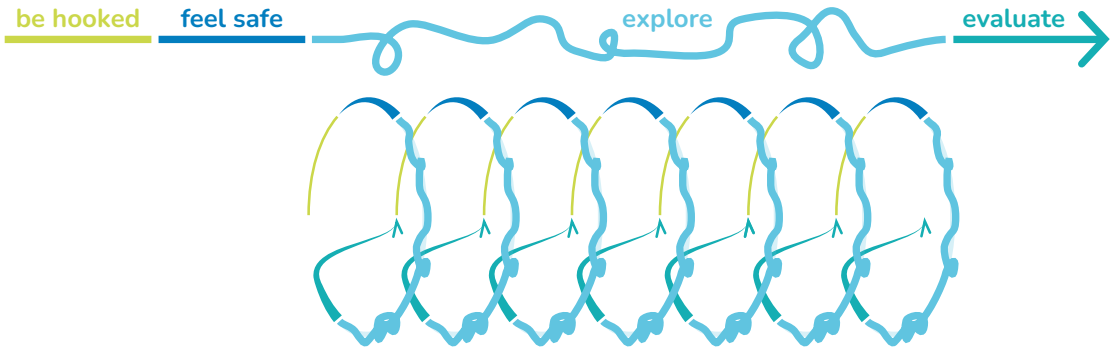


Figure 6.4: Foundational architecture of the module

6.4
Storytelling and Identity

Literature indicates that there is a strong, even natural connection between identity and storytelling. As described above, McLean and Pasupathi (2012) see storytelling as the natural means of exploration and as the most suitable way to commit to an identity. In stories, people automatically make connections between themselves and their experiences which helps them to either explore if the identity suits them, or commit to it by connecting the identity to their experiences. Other researchers even state that storytelling is the foundation of human experiences and communication, and the standard way in which humans make sense of their own lives and the lives of others (Gray, 2009; Haigh & Hardy, 2011; McAdams, 2011). Via stories, we integrate and link the knowledge and experiences we have with the context we are in and the future we want to go to. Thereby, stories provide temporal order in our identities.

> *It is an individual's story which has the power to tie together past, present, and future in his or her life. It is a story which is able to provide unity and purpose. It is a story which specifies a personalised "niche" in the adult world and sense of continuity and sameness across situations and over time.*
>
> McAdams (1988) p. 18

Stories may be especially useful in education. The main reasons brought forwards are the following:

1. The easy accessibility and familiar format of stories invite students to join (Gray, 2009)
2. Storytelling is not a passive form of education, but involves telling, listening, shaping and reshaping knowledge and experiences (Bleakley, 2005)
3. The fictional world created by a story allows students safely state their opinion and desires (Green & Jenkins, 2014)

So, there is a connection between storytelling and identity but how exactly can stories support the identity exploration stated in the design goal? Literature brings forward several possibilities or even specific methods, including storytelling spaces to share stories among students and faculty members, storytelling games, and narrative reflection. An overview of the different approaches that use storytelling can be found in Appendix 26.

The most important and concrete method is autobiographical reasoning (Habermas, 2011; McAdams, 2011; McLean & Pasupathi, 2012). Autobiographical reasoning supports the creation of one's narrative identity, which is defined as "the internalised and evolving story of the self that a person constructs to make sense and meaning out of his or her life" (McAdams, 2011, p. 99). Via autobiographical reasoning, this story of the self is constructed by making connections between past experiences and the current and imagined self. Thus, people actively reflect on their personal past, and extract stories that explain how they became the person they are now. Thereby, creating a narrative identity provides a sense of purpose, creates continuity, embeds one's life in a historical and social context, and helps to better understand oneself (Habermas, 2011; McAdams, 2011; McLean & Pasupathi, 2012). Taking one step further, McAdams (2011) states that to show one's multifaceted character (i.e. being a different person in different contexts and situations) narrative identity should contain different stories for different situations:

> *Narrative identity as a polyphonic novel within which different voices of the self (akin to characters in a story) express themselves in their own unique and self-defining ways. The self evolves through an internalised dialogue of voices, each with its own story to tell.*
>
> McAdams (2011) p. 102

It is important to remember this multifaceted character of identity, but for educational purposes it is preferred to start simple by first defining one personal story. Besides, as this project is about the PIF process of medical students, there is a clear context for which one narrative identity can be created: the context of becoming a doctor.

To explore and define one's life story in a context (i.e. to perform the act of autobiographical reasoning) several steps were brought forward by literature (Habermas, 2011; McLean & Fournier, 2008). Before showing the steps, the term 'self-defining memories' must be explained as these memories play a crucial role in autobiographical reasoning. A self-defining memory is

> *a memory that is vivid, highly memorable, personally important, at least one year old, and that conveys powerfully how one has come to be the person one currently is.*
>
> McLean & Fournier (2008) p. 534

Autobiographical reasoning starts by defining these memories, as explained in the following steps:

1. Create a prompt for self-defining memories to arise, such as a timeline
2. Describe the self-defining memories: what was the context, when did it happen etcetera
3. Make self-event connections, i.e. explain why the selected memory is important and what it means for one's identity
4. Determine the emotional value of the self-event connections
5. Find the overarching theme or pattern which seems to reoccur in one's life
6. Write the story of the self
7. Reflect

Conclusion

Literature indicates that there is a strong, even natural connection between identity and storytelling. Stories are useful for both exploring and committing to your identity, and they create continuity as well as purpose in your life. The most concrete method for defining your narrative identity is autobiographical reasoning where you create connections between past events, the person you are now, and the person you want to become. This process consists of seven steps, which are a useful basis for creating concepts that address the exploration phase.

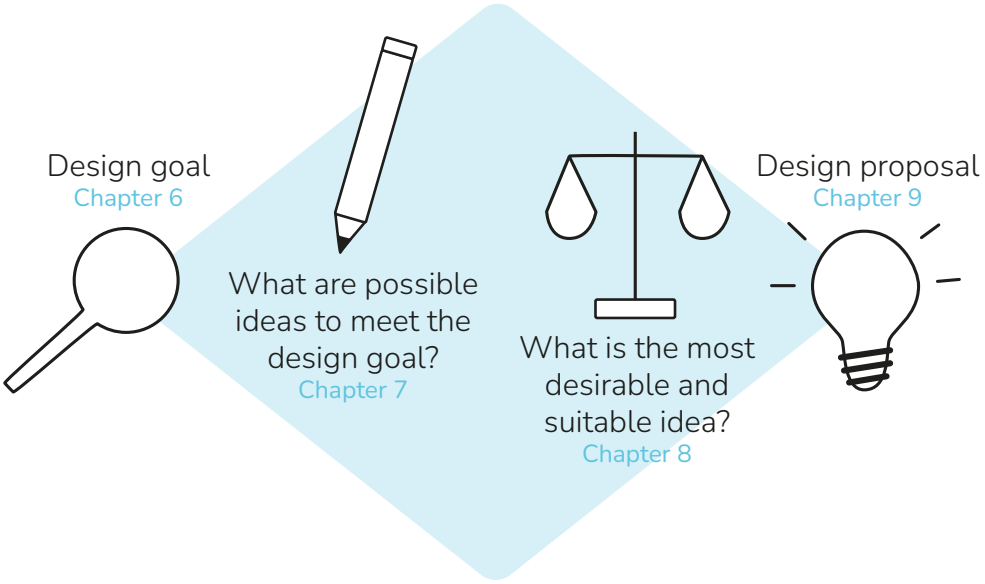
Part B
Conceptualiza

ation

After having converged on the design goal described in Chapter 6, Part B starts with diverging by exploring possible ideas to meet this goal. Chapter 7 describes this ideation, ending with three concepts for educational modules supporting residents in discovering their personal unique identities. These concepts are evaluated with stakeholders and with a design method to select the final design. This converging process will be described in Chapter 8. Finally, Chapter 9 elaborates upon the final design proposal to provide a good understanding of the educational module before moving on to Part C.

Part Content

7 Ideation
8 Selection
9 Final Design Proposal



7 Ideation

Chapter 6 defines a concrete goal for the design, this chapter focuses on creating ideas addressing this goal. After briefly explaining the approach in Section 7.1, each of the ideation steps is explained in Section 7.2. While these sections are described linearly for the sake of clarity, the process has been dynamic and iterative. The final section describes the three design concepts resulting from this iterative ideation process.

Chapter Content

7.1 Approach
7.2 Ideation Steps
7.3 Concepts

“The best way to have a good idea is to have a lot of ideas.”

Linus Pauling, scientist and Nobel Prize winner (2 times)

7.1
Approach

The design goal and four phases described in the previous chapter (and summarised in Figure 7.1) bring forward several research questions:

1. What is a personally unique identity? (design goal)
2. What can be done with storytelling? (design goal – stories)
3. How to structure the exploration phase to gradually come to the core of identity? (design goal – stepwise / step 3)
4. How can residents be hooked for PIF education? (step 1)
5. How to make residents feel safe to open up? (step 2)
6. How to evaluate self-insights and concretise them into takeaways? (step 4)

Research questions 1 and 3 are related, as both aim to find out what personal identity is and what aspects and/or steps it consists of. Until now, the focus of this graduation project has been on PIF, however, a deeper understanding of personal identity is needed to design suitable education for it. Since the main part of the educational module will consist of the exploration phase, of exploring one's identity via stories (see Figure 7.1), the ideation process started by addressing questions 1 and 3. Once the general structure of personal identity was better understood, ideas were generated for research question 2.

The generated ideas were then used to create three overarching concepts for the exploration phase. After that, an ideation for the phases before (research questions 4 and 5) and after (research question 6) exploring one's identity was performed, focusing on the use of stories.

The results were matched to the three concepts. Finally, ideas were developed for how to best embed these concepts in the general curriculum. Furthermore, one class of the module was detailed to gain a better understanding of what the education would precisely look like. This whole ideation process is visualised in Figure 7.2 and will be briefly explained in Section 7.2. While the process seems linear, in reality it was dynamic and iterative. Please keep in mind this is a simplification of the process.

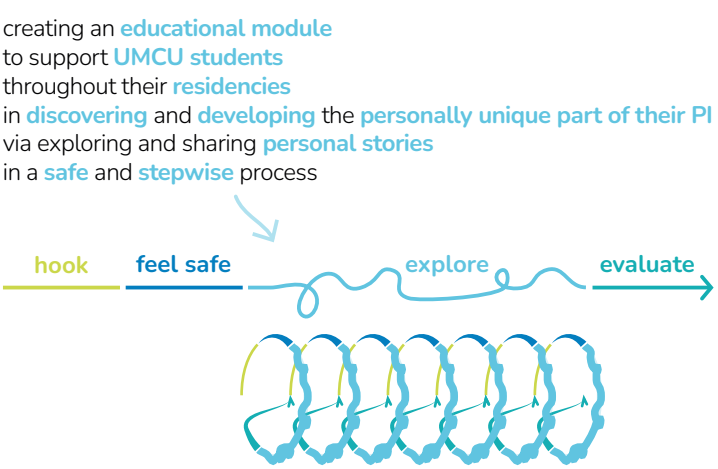


Figure 7.1: Design goal

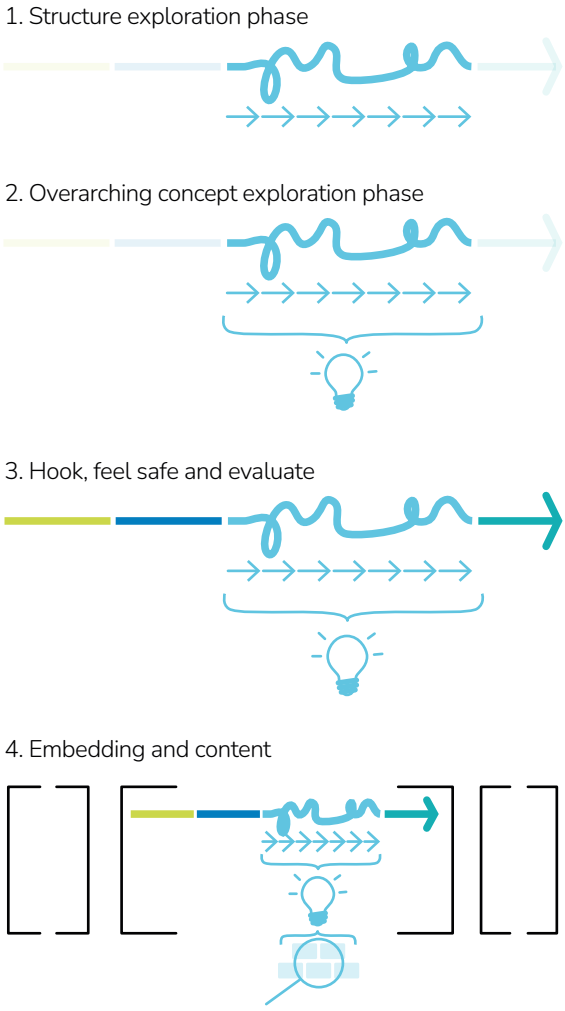


Figure 7.2: Ideation steps (note: this process was iterative instead of linear)

7.2
Ideation Steps

Exploration Phase - Structure

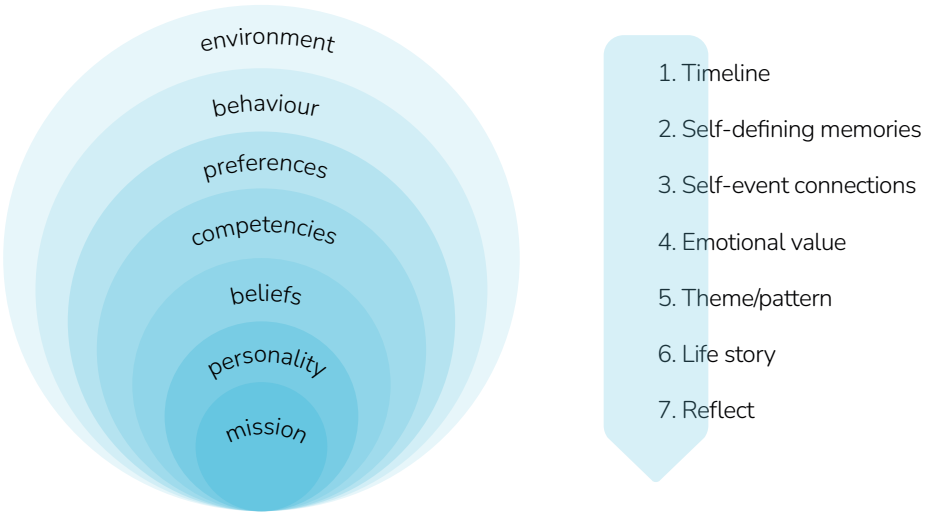
To better understand personal identity, theories describing identity were gathered including some of the theories found in the literature study of Chapter 2. To also use the expertise of stakeholders, a creative session with psychiatrists and psychologists was arranged, centred around their views and approaches to identity (see Appendix 27 for more information). The participants provided several identity theories to look into, but mainly emphasised the importance of childhood and upbringing for one's identity.

Altogether, nine different theories were collected. Evaluating their suitability for education resulted in the selection of three of them (see Appendix 28). Two of the theories partly overlap and were merged resulting in framework I (see Figure 7.3). This framework is essentially the onion model of Korthagen (2004) with three adaptations (see Appendix 28):

1. 'Preferences' was added as an extra layer based on several models from positive psychology (Seligman, 2018)
2. The layer of 'environment' mostly addresses influences of the past social environment
3. The penultimate layer is termed personality

Framework II consists of the steps of autobiographical reasoning described in Chapter 6 (Habermas, 2011; McLean & Fournier, 2008), thereby addressing the emphasis from psychiatrists and psychologists on the importance of the past for one's identity (see Figure 7.3).

Framework I covers more aspects of identity than framework II and gathers more theories from the research in Chapter 2. Therefore, framework I was used as the basis for two of the design concepts and framework II for one.

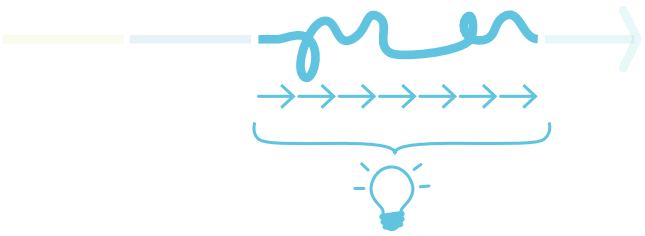


framework I
Korthagen (2004), Seligman (2018)

framework II
Habermas, (2011), McLean & Fournier (2008)

Figure 7.3: Two frameworks as possible foundational structures for the exploration phase

Exploration Phase - Overarching Concept



The input from this step came from various sources. First of all, the research performed in Part A of this thesis resulted in 109 small ideas. Secondly, ideas from the sessions with stakeholders (including the session with psychiatrists and psychologists) were added. Finally, insights about the link between storytelling and identity (described in Chapter 6 and Appendix 26) and a small brainstorm about storytelling, resulted in a third collection of ideas. All these ideas together will be referred to as the pile of ideas.

From the pile of ideas, those that were overarching ideas for education, and not for a single class or assignment, were extracted. Evaluating these with the requirements from Chapter 5 and combining similar ideas, resulted in 10 ideas for the design of the exploration phase (see Appendix 29). Using a selection method suitable for early ideation phases (Van Boeijen et al., 2020) led to the selection of three final ideas which were combined with the frameworks of the previous step (see Figure 7.4):

1. **Thematic workshops guided by older students and A(N)IOS – framework I**

In this idea, several 2-hour workshops were proposed, with each addressing one of the layers of the framework. Since layers A (past/environment), E (beliefs) and G (mission) of framework I were deemed most important by stakeholders, these layers are addressed in two workshops. Fifth-year students provide the workshops for third-year students, sixth-year students facilitate the workshops for fourth-year students, and A(N)IOS do the workshops for fifth-years.

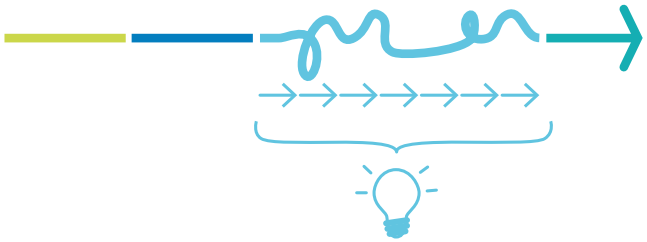
2. **Challenges to explore one's identity – framework I**

This idea uses challenges as a form of education. For each of the layers in framework A, several challenges are provided to the students to choose from. Challenges can be done in a group or individually, at home or in class, in two hours or spread over several weeks etcetera. Due to the longitudinal character of the challenges, each layer of framework I is once.

3. **Book filled with photos and stories – framework II**

In this final idea, students go through the process of autobiographical reasoning via classes and self-study. They bring photos from their past as prompts and stick these in a sketchbook accompanied by written stories.

Hook, Feel Safe and Evaluate

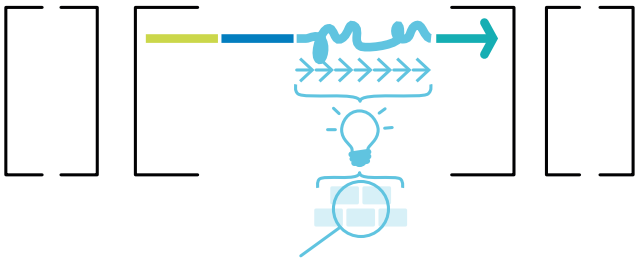


In this step, the ideas from Figure 7.4 become real design concepts as adding the hook, feeling safe and evaluation phases results in a design for the whole module. First, a brainstorm was performed for research questions 3 (hook), 4 (feel safe) and 6 (evaluate and concretise). Then, the pile of ideas excluding the overarching ones (see the previous step) was split into four groups:

1. Ideas to hook students
2. Ideas to help students feel safe
3. Ideas to evaluate and concretise self-insights
4. Ideas for the content of classes and assignments of the exploration phase

In each of the groups, ideas were clustered and combined, to match them with one of the three concepts. Ideas in group 4 were not further sorted, and ideas from groups 1-3 best suiting each of the concepts were selected. This resulted in the full structure of the educational module. The results are shown in Figure 7.5 and further elaborated in the next sections.

Embedding and Content



In this final step, the concepts were further concretised to be evaluated with stakeholders. The group sizes, number of teachers, context of education, place in the curriculum, and learning goals were determined. Besides, the first class for each concept was designed (Workshop 1.1 for concept 1, the challenges of class 1 for concept 2, and the first class of collecting self-defining memories for concept 3). The next section describes these concepts, with more details in Appendices 30-32.

Conclusion

The conceptualization process started with possible frameworks about personal identity to formulate concepts for the exploration phase. In this process, ideas from several sources were used. The ideas which did not describe general concepts for an educational module were taken to the next step, where the hook, feel safe and evaluation phase for each concept were created. Finally, the context and part of the content of the classes were designed. The results are described in the next section.

1. Peer workshops

workshop *class*

BSc yr3	introduction	A.1 Environment - family	A.2 Environment - broad	B. Behaviour	C. Preferences
MSc yr4	D. Competencies	E.1 Beliefs - schemas	E.2 Beliefs - values	F. Personality	A(N)IOS Q&A
MSc yr5	learn to facilitate	facilitate for yr 3	G.1 Mission - dreams	G.2 Mission - philosophy	wrap-up
MSc yr6	facilitate for yr 3&4	A(N)IOS	facilitate for yr 4&5		

2. Identity challenges

challenge *class*

BSc yr3	introduction	challenge A environment	challenge B behaviour
MSc yr4	challenge C preferences	challenge D competencies	challenge E beliefs
MSc yr5	challenge F personality	challenge G mission	wrap-up

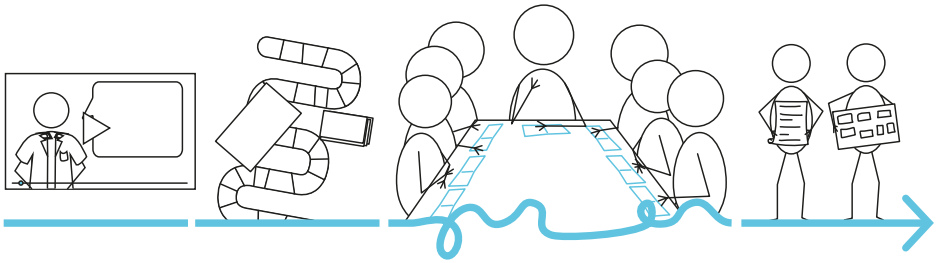
3. Story-photobook

self-study *class*

BSc yr3	0. Intro	1. Timeline	2. Self-defining memories
MSc yr4	2. continued	3. Self-event connection	4. Emotional value
MSc yr5	5. Theme	6. Life story	7. Reflect

Figure 7.4: Three ideas for the exploration phase of the educational module

Peer Power

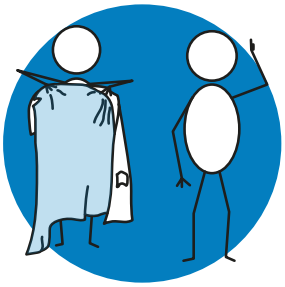


extracts from the KoffieCo podcast

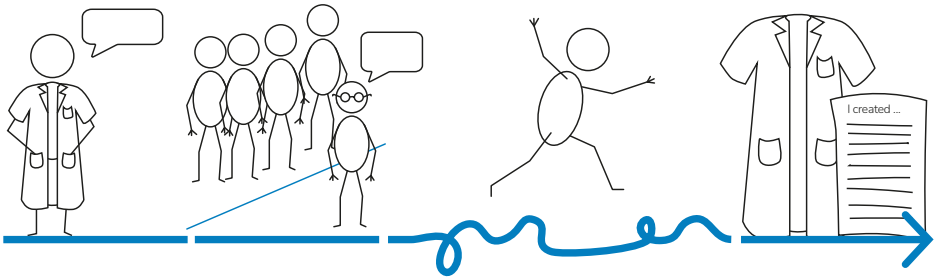
identity introduction game

peer-facilitated workshops

combine your self-insights in a creative self-presentation



Identity Challenges

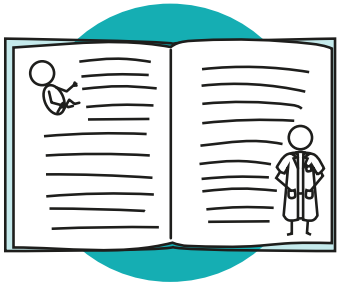


stories of medical professionals

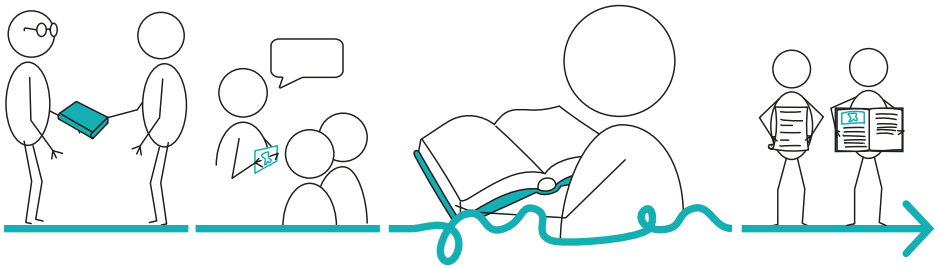
Cross the Line

self-chosen challenges

adapt the doctor's coat



Storybook



receive your own book

share pictures with peers

collect your memories, prompted by images

write your life story

Figure 7.5: Four phases for each of the concepts

7.3 Concepts

Via the four steps described in the previous section, three concepts were created: Peer Power, Identity Challenges and Storybook. These concepts differ in the foundational framework used for the exploration phase, the setting in which education is given, the way in which the phases of hook, feel safe, explore and evaluate are addressed, the precise learning goals they support and the way they fit in the curriculum. Table 7.1 provides an overview of the most important information. More details, such as the amount of hours the concept asks from each teacher, the exact learning goals and the embedding in the curriculum can be found in Appendix 30-32.

Table 7.1: Main differences between the three concepts

	Peer Power	Identity Challenges	Storybook
Foundational framework	Framework I: seven layers for reflection adapted from Korthagen (2004)	Framework I: seven layers for reflection adapted from Korthagen (2004)	Framework II: seven steps of biographical reasoning extracted from McLean and Fournier (2008) and Habermas (2011)
Hook	• Being excited by having to be able to facilitate yourself • Understanding the importance of knowing yourself in the medical profession via statements from professionals	• Being excited about challenge-based education • Becoming curious because of the first Cross the Line class • Understanding the importance of self-understanding via stories from professionals	• Invest by bringing 2 pictures • Receive your own book • Understanding the importance of knowing yourself in the medical profession via stories from professionals
Feel safe	• Get to know each other via an identity game • Have the same group of 6 students for three years • Be guided by peers instead of teachers • Have facilitators who not only facilitate but also do the workshop exercises • Start each workshop with what you need to feel safe	• Get to know each other via Cross the Line • Choose how deep you want to go by selecting which challenges you take • Feel the first step in opening up is already taken by the medical professionals telling their stories	• Get to know each other via pictures and book title sharing • Have the same teacher and group for three years • Only share what you write down if you feel ok with it (except for the final exercise in year 5)
Explore	• 2-hour workshops, guided by older students and A(N)IOS • Participants receive a workbook, facilitator a handbook • Each workshop has the same structure: 1) introduction, 2) ground rules to feel safe, 3) self- and group exercises, and 4) takeaways which are uploaded on Blackboard • At the end of year 5, students enrol for facilitating • Final creation has to be uploaded on Blackboard	• 2–4-hour challenges which are divided over two afternoons • Students have to earn points to pass: 8 points in year 3 and year 5, and 12 points in year 4 with at least 1 point for each theme • At the end of each class, students enrol for a challenge next time • For each challenge, a deliverable has to be uploaded on Blackboard	• 2-hour classes and 1-2 hours of self-study, except for the step of writing your own story where students have 4 hours of self-study and a 15-minute meeting with the teacher • For most classes, students upload pictures which are printed by the teacher • Students share stories with peers, family and friends to gain self-insights • Final story and reflection have to be uploaded on Blackboard

	Peer Power	Identity Challenges	Storybook
Evaluate	• Make a creative presentation of who you want to be as a professional (story, metaphor, value, statement, poem, etc.) • Reflect on what you have learned about yourself and what this means for your role as a resident now and as a professional in the future	• Adapt and pimp a doctor's coat to show what you find important and who you want to be, with a small accompanying story • Reflect on what your personal insights mean for your behaviour and decisions in the future	• Review the photo/storybook, ending with a photo of oneself and a story about who one wants to become as a medical professional • Reflect on what the self-insights mean for one's future
Main form of education	First and last class in group of 36 students with a teacher, in between workshops with 6 students facilitated by a peer of A(N)IOS	First and last class in group of 36 students, the educational forms of challenges include classes, working in groups, working in pairs, talking to family and friends, and self-study	Classes in groups of 36 students and homework including interaction with peers, family and friends

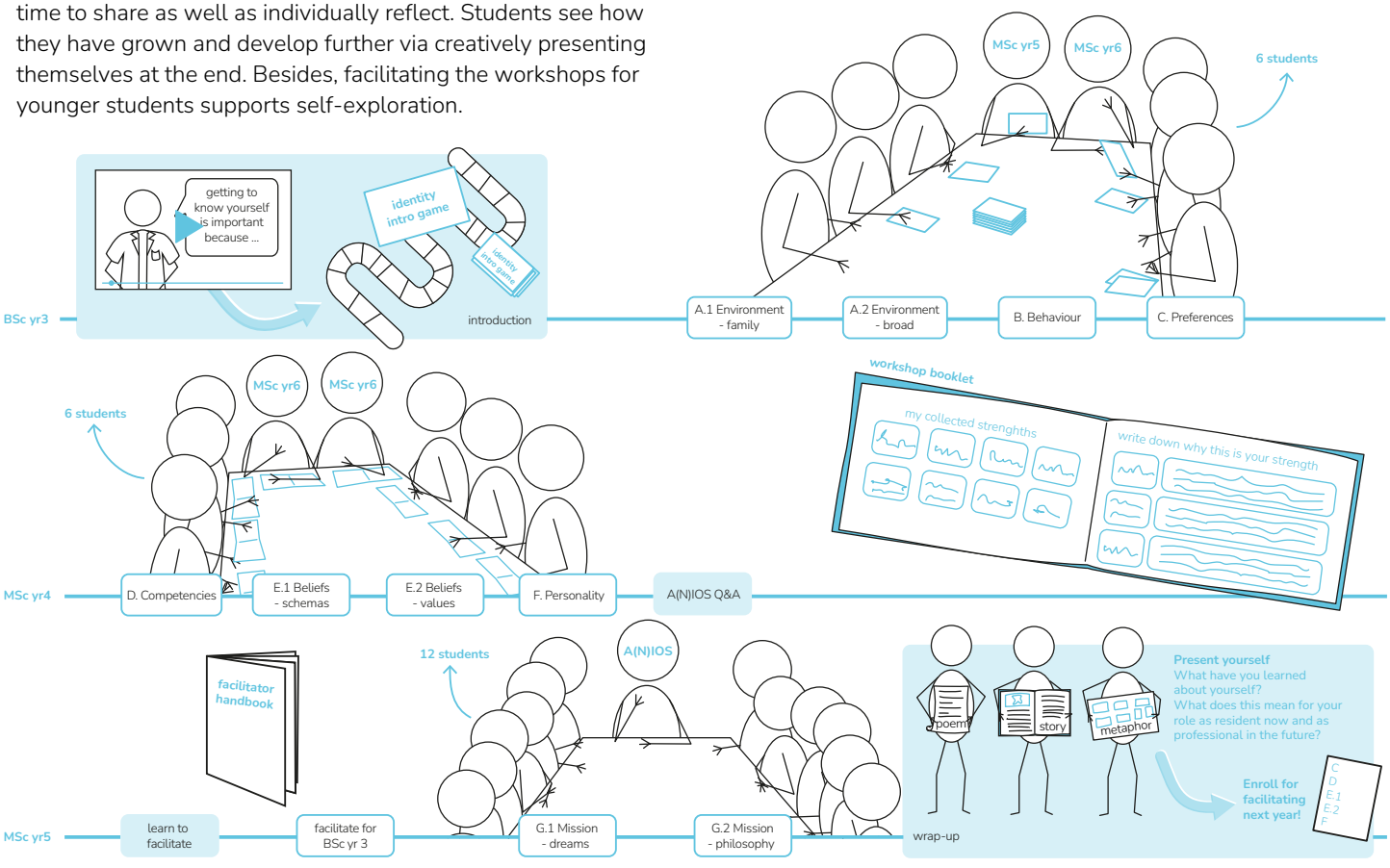
To gain a better understanding of each of the concepts and to be able to evaluate the concepts with stakeholders, each concept was visualised. These visualizations together with a short description are shown below and on the next page. The evaluation with stakeholders is described in the next chapter.

Conclusion

Three concepts were created to address the design goal. Each concept differs in educational setting and approach for the phases of hook, feel safe, explore and evaluate. Peer Power uses peer-facilitated workshops, students combine their self-insights in a creative presentation. Identity Challenges allows students to choose a challenge for self-exploration and ends with pimping the doctor's coat. With Storybook, students collect personal stories which they finally integrate into a story about who they want to be.

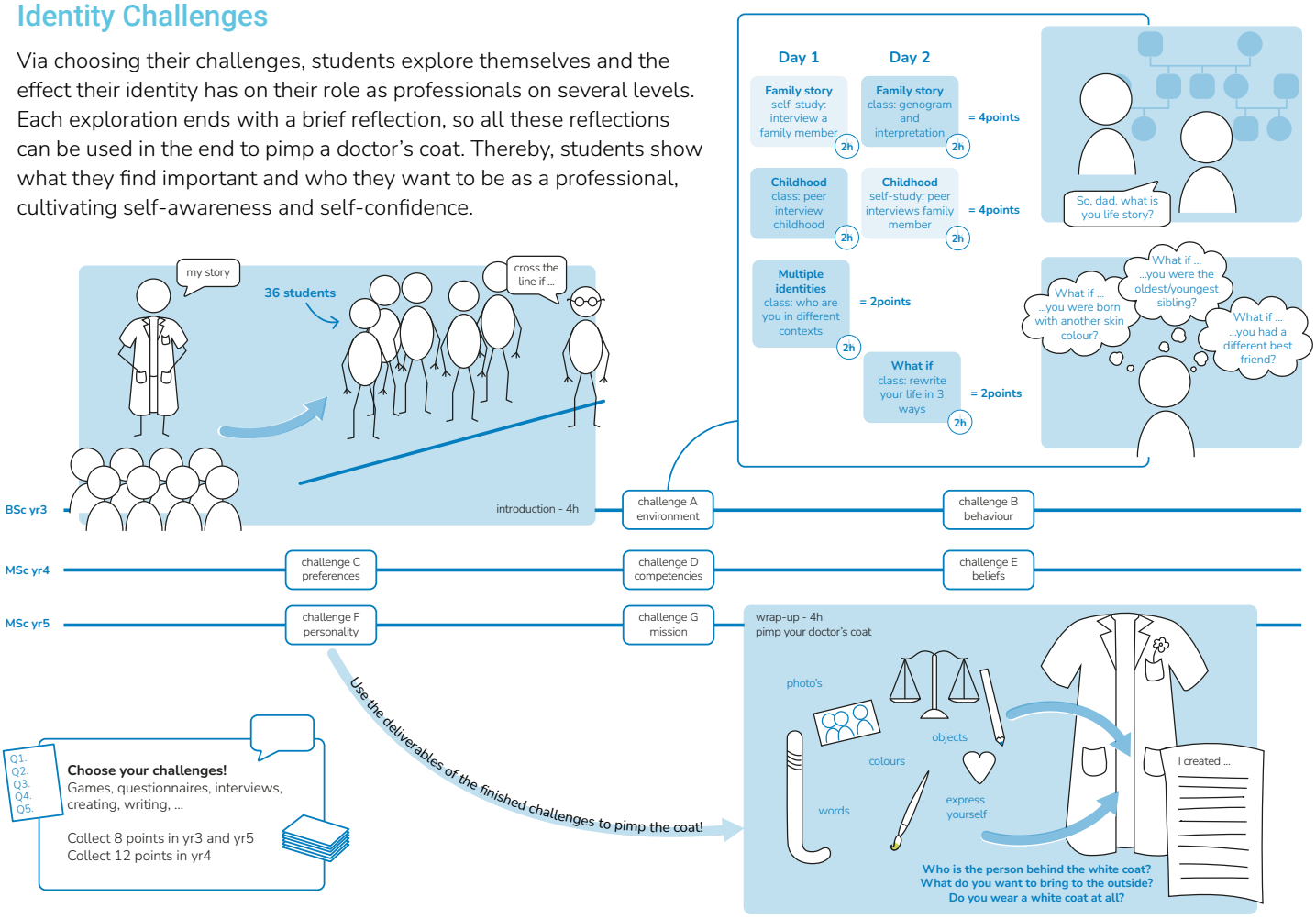
Peer Power

Students learn from and with direct peers. Older students and A(N)IOS tell about themselves and the value of taking time to do so. The workshops are guided by pre-made workshop booklets and a facilitator handbook. Each workshop provides time to share as well as individually reflect. Students see how they have grown and develop further via creatively presenting themselves at the end. Besides, facilitating the workshops for younger students supports self-exploration.



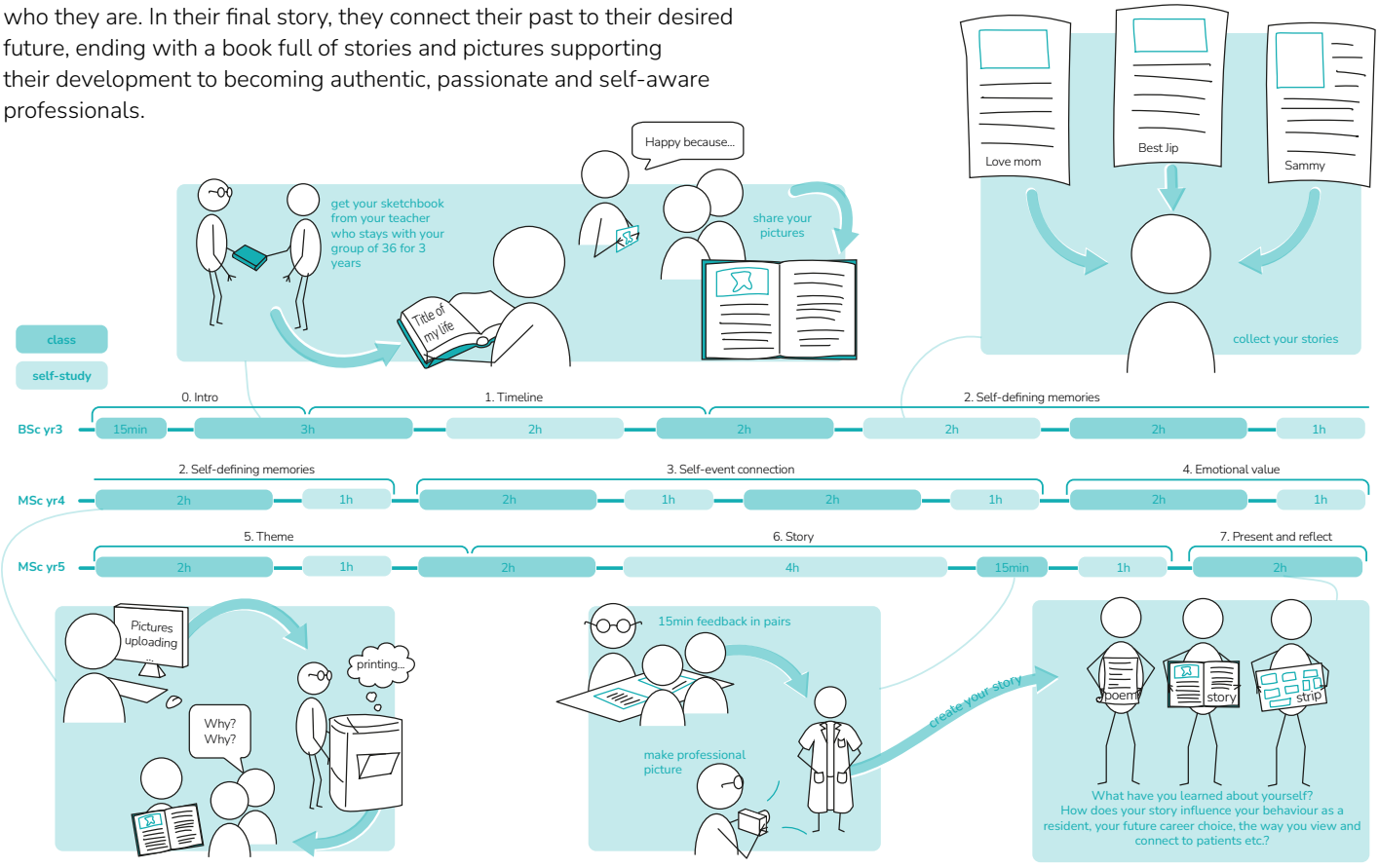
Identity Challenges

Via choosing their challenges, students explore themselves and the effect their identity has on their role as professionals on several levels. Each exploration ends with a brief reflection, so all these reflections can be used in the end to pimp a doctor's coat. Thereby, students show what they find important and who they want to be as a professional, cultivating self-awareness and self-confidence.



Storybook

Pictures, games and interviews are used to spark students' memories about experiences that shaped them. They are supported in collecting stories about such self-defining memories to find out what makes them who they are. In their final story, they connect their past to their desired future, ending with a book full of stories and pictures supporting their development to becoming authentic, passionate and self-aware professionals.



8 Selection

This chapter evaluates the three concepts defined in Chapter 7 and ends with a proposition for the final design. First, an evaluation with the Weighted Objectives method is described, followed by an evaluation with stakeholders. The insights are combined in the last section, to decide how the final design will be formed. The final design is elaborated in Chapter 9.

Chapter Content

8.1 Approach
8.2 Weighted Objectives
8.3 Stakeholders' Opinions
8.4 Combination

“I like having the same group, and individually doing different challenges all the time, but I want to get a bit of feedback like “hey how did you experience this challenge, what did you have to do?”

Sixth-year tudent

8.1 Approach

In design, the final user is often placed at the centre. The requirements and desires of stakeholders are important. However, it is the designer's role to help the client expand their view of the problem. Therefore, the three concepts were evaluated with stakeholders as well as via a more rigorous selection method used in design processes (the Weighted Objectives method). The goal of both evaluations was to determine which of the concepts best fulfils the design goal: Creating an **educational module** to support UMCU students throughout their **residencies** in discovering and developing the **personally unique part of their Professional Identity,** via exploring and sharing **personal stories** in a **safe** and **stepwise** process.

Weighted Objectives Method

In this method, concepts are scored on a list of wishes. The wishes used came from three sources (see also Appendix 33):

1. The list of wishes from Chapter 5
2. The design goal of Chapter 6
3. Idea generation in Chapter 7

In the Weighted Objectives method, each wish is given a certain weight based on its importance. Then each concept is scored on every wish. The scores and weights combined indicate which concept is deemed most suitable. Besides, the score on each separate wish shows possibilities for improvement. The results are described in Section 8.2. More information can be found in the Delft Design Guide (Van Boeijen et al., 2020, p. 187).

Evaluation with Stakeholders

For the evaluation with stakeholders, three different sessions were organised:

1. A session with teachers, tutors and coordinators of existing PIF-related courses as well as employees who make the final decisions about the UMCU curricula (five participants)
2. A session with students currently in their residencies (five fourth-year students, one sixth-year student)
3. A session with the coordinators and most important staff of Blok and LINK Blue as they provide the pilot space (two coordinators and one person who supports the residents)

The setup and materials for the sessions can be found in Appendix 34. The sessions were transcribed verbatim and anonymised. Quotes were qualitatively analysed via thematic analysis, the results of the questionnaire were quantitatively analysed and averages of the Likert scales were calculated. The findings of these qualitative and quantitative analyses can be found in Section 8.3.

8.2 Weighted Objectives

16 wishes were collected to score the concepts. The 16 wishes state that a concept is more desirable when:

1. It has a greater focus on uniqueness, weakening the belief that there is one type of perfect doctor
2. It better connects to being a resident/medical professional
3. It provides students with more agency
4. It allows students to learn more from each other
5. It entails a wider variation in activities (do, talk, write etc.)
6. It positions identity as a dynamic construct that can change
7. It provides more choices for students (without indicating there is one best way)
8. It has a safer learning approach, i.e. learning via fictional stories or stories of others
9. It positions staff as equal to the students
10. It enables students to see their progress
11. It requires less time effort from the staff
12. It uses smaller groups
13. It teaches via stories
14. It provides more interactions with different types of people
15. It has a more exciting goal students can work toward
16. It is more useful for the staff's PIF process

The weights given to the wishes and the scoring of the concepts can be found in Appendix 33. Concept 3, Storybook, is least suitable for this design project (it scores 186 points out of 300). Peer Power and Identity Challenges have the same total score (204 out of 300). While Identity Challenges has a more average score across a larger number of wishes, Peer Power scores low on a few wishes deemed important. Therefore, adapting Peer Power to remove the weak points has a much greater effect than adapting Identity Challenges. Interestingly, Identity Challenges scored highest on the wishes Peer Power scored lowest on (wish 3, 5 and 7).

If Peer Power could be adapted to provide students with more agency (wish 3), use a wider variation in activities (wish 5), enable students to choose or adapt the education (wish 7), and add something to help students see their progress (wish 10), it would clearly be the most desired concept. These changes are related to the autonomy of the student: feeling autonomy over your learning process (wish 3 and 10) and autonomy over how to learn and grow (wish 5 and 7).

Conclusion

Storybook meets the smallest number of wishes for the design. Peer Power and Identity Challenges have the same total score, but for Peer Power fewer changes are needed to reach a relatively bigger improvement. These changes mostly address the student's autonomy and are the aspects scored highest on by Identity Challenges.

8.3
Stakeholders' Opinions

During the sessions, participants scored each concept on three Likert scales directly after the concept was shown. Thereafter, they were asked to explain their opinions. The scores on the Likert scales were analysed quantitatively, their opinions qualitatively.

Quantitative Analysis

The Likert scores asked how enthusiastic the participants were about an idea, how much they think it helps students to explore themselves, and how suitable they deem the concept for the new curriculum. When looking at the average scores of the participants, there is not one concept clearly out-scoring than the others (see Appendix 35 for all scores). Peer Power has an average total score of 5.38, Identity Challenges an average of 5.19, and Storybook an average of 5.36. Figure 8.1 shows these final scores as well as the averages from the scores of the staff session, the student session, and the session with staff from Blok/LINK Blue.

The staff of session 1 was most enthusiastic about Storybook, thought this concept best helps students to explore themselves, and deemed it most suitable for the new curriculum. Thereby, Storybook received the highest score in session 1.

In the student session there was no highest score, all concepts scored an average of 5.3. Peer Power was deemed most suitable by the students to help them explore themselves. Students were most enthusiastic about Storybook and also thought this concept would fit best in a new curriculum.

Finally, the staff of Blok/LINK Blue scored Peer Power the highest. They were most enthusiastic about it and they saw it as the best way to help students explore themselves. Blok/LINK Blue staff thought Storybook would best fit the curriculum.

Conclusion

Storybook and Peer Power received the highest averages on the Likert scales. Storybook was deemed most suitable to fit into the curriculum by all participants. Besides, participants of the staff and student session were most enthusiastic about this concept. The staff of Blok/LINK Blue was most enthusiastic about Peer Power, which was also seen as the best way to help students explore themselves by both the staff of Blok/LINK Blue and the students. However, all scores were very close as the lowest was a 4.7 and the highest a 6.0 (on a total of 7.0 since Likert scales were used).

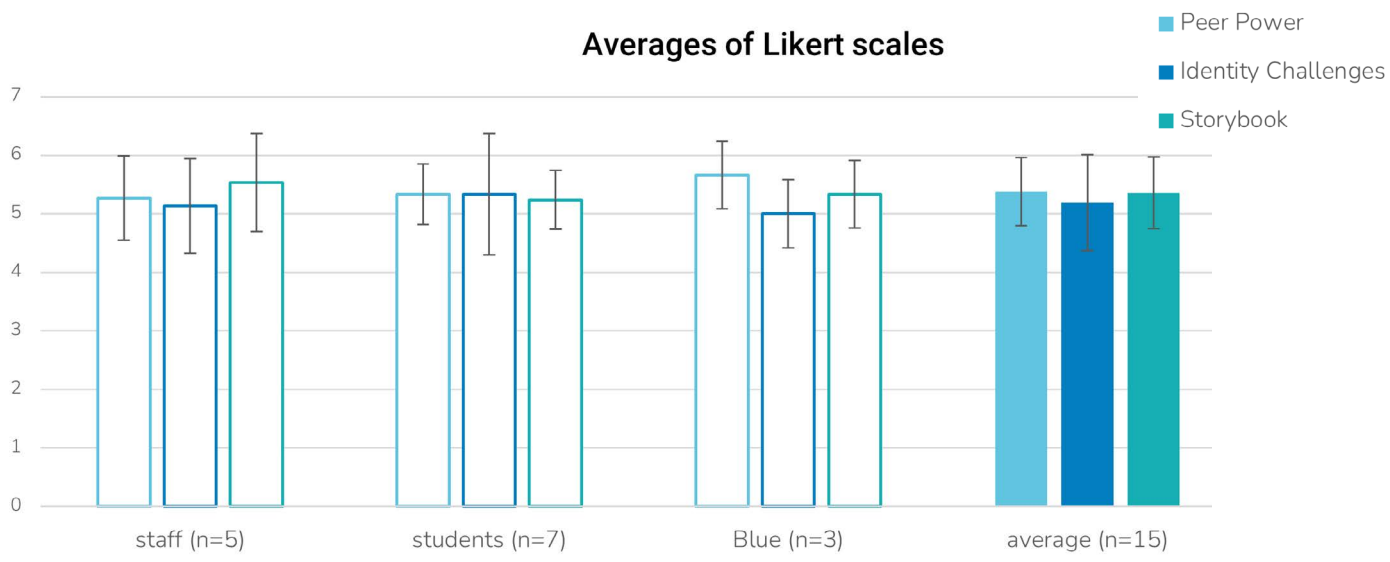


Figure 8.1: Summarised scores of the Likert scales including standard deviations

Qualitative Analysis

The plusses, minuses and tips participants gave for each of the three concepts were collected, as well as their final descriptions about the most desired form of education (which turned out to always be a combination). All the plusses, minuses, tips and most desired forms of education are described in Appendix 36, with a summary below.

Summary of plusses, minuses and tips

The opinions of the participants from the different sessions overlap in some aspects. All participants emphasise the usefulness and pleasantness of having the autonomy to choose, of including a variety of activities in the course, of having fixed and small groups, and of collecting the self-insights in one physical place. However, all participants stated this physical object needs to have a digital copy as well since students will probably lose it.

> *Very nice that students can choose their own challenge and thus have the opportunity to do something that suits them.*
>
> Policy officer

Two other commonalities were the desires of participants to focus on the past, present and future, and to integrate the concepts in existing education such as tutoring and coaching. While all participant groups advised using a variety of teachers, they all did so in different ways. Participants of the staff session (session 1) desired to include staff from both UMCU and other educational institutions such as the Utrecht School of the Arts. Students wanted a wide variety of staff and student assistants (students who already help in education) from inside UMCU. The staff of Blok/LINK Blue said existing coaches and all students should be facilitating.

These differing opinions show that only the participants of the staff session did not see a role for students as facilitators. They thought students are not able to guide such personal workshops. However, the other participants brought forward benefits of peer facilitation, such as learning to take the lead.

> *Being a facilitator allows for growth and learning, e.g. later arranging a team getaway: "I'll do that, no worries"*
>
> Blok coordinator

While the PIF staff and students saw many benefits in the use of photos, the Blok/LINK Blue staff was not as enthused. Pimping the doctor's coat (the wrap-up exercise of concept 2) also resulted in a wide variety of opinions, some very much enjoyed the possibility for creative expression while others did not see any value in the exercise. Finally, there is a variation in opinions about doing the exercises individually or in groups. While some individual education (including online classes and self-study) may be needed to reflect, sharing in groups can help in broadening and deepening one's insights. There is a fine line between what is desired to share, and what should be kept for oneself.

> *Having someone else talking about it makes me think more about it: do I have that too or is it different with me?*
>
> Third-year student

Summary of the desired form of education

In each of the three sessions, a different concept was preferred. In the session with PIF staff and policy officers, most participants preferred concept 3 (Storybook). However, they wanted to include the steps of framework I (the adapted Onion model of Korthagen (2004)) instead of framework II (autobiographical reasoning) to focus more on the now and the future. One participant preferred the Identity Challenges, with the final exercise of pimping the doctor's coat being replaced with the storybook. The content for this book could then be collected in the challenges.

Almost all students preferred to combine Identity Challenges with Storybook, by using pictures as prompts in the challenges and by collecting all insights from the challenges in a book. Besides, they proposed to alternate the individual challenges with group sharing sessions in fixed groups (extracted from Peer Power), which can be the coaching already present on the LINK return-days. Interestingly, while students saw Identity Challenges as the base for their most desired education, they gave it the lowest scores on the Likert scales.

> *I would find it both a shame if the idea of Challenges where you can choose for yourself is lost, and if the Storybook idea with being able to think instinctively is lost. And the fixed groups of Peer Power.*
>
> Fourth-year student

The staff of Blok/LINK Blue preferred concept 1 (Peer Power) but would like to include a wider variety of exercises, for example, receiving a workshop booklet one time and bringing a picture another time. Besides, they appreciated the content of the challenges and would like to include those in the Peer Power workshops. Participants thought it may be beneficial to include staff or coaches a bit more, for example, by letting them join parts of the workshops.

Conclusion

Autonomy, variety, fixed groups, a place to collect insights, addressing the past, present and future, and integrating the concepts in existing education were deemed important by all participants. Participants varied in their opinions about who should teach, how creative the assignments should be, and what the balance between individual and group work should be. This variety is reflected in the form of education participants described as most desired, where each group of participants chose a different concept as the basis.

8.4
Combination

Both Section 8.2 and 8.3 show that there is not one concept most preferable, a combination is needed to meet the design goal desirably. According to the insights, only the methods of using photos as prompts and collecting stories in a book should be taken from concept 3. The main structure of the design should be a combination of Peer Power and Identity Challenges. Peer Power provides the possibility to share and creates a safe atmosphere by using fixed groups, Identity Challenges provides autonomy to choose and creates a feeling of safety by allowing individual self-exploration. Besides, to use the didactical skills of official teachers (tutors) and the approachableness of older students, both can teach different parts of the education module.
From the evaluation with stakeholders, it became clear that framework I defined in Chapter 7 (adapted from Korthagen (2004)) is the most suitable foundation for the exploration phase (again depicted in Figure 8.2). The next chapter shows how this basis can be used to combine Peer Power, Identity Challenges and some aspects of Storybook into an appropriate educational module to support medical students in their PIF process.

Figure 8.2: Framework I adapted from Korthagen (2004)

9 Final Design Proposal

This chapter elaborates upon the final design. The final design has been created via a research-through-design approach as will be explained in the first section. The second section provides an overview of the designed educational module, called AIO – Arts In Ontwikkeling (Doctor in Development). Sections 9.3 – 9.8 each explain important design decisions made for the different parts of the course.

Chapter Content

9.1 Approach
9.2 Module Structure
9.3 Introduction Class
9.4 Workshops and Challenges
9.5 Wrap-Up Cycle
9.6 Peer Facilitation
9.7 Design of Materials
9.8 Assessment

“Every doctor does his work differently because every person has different preferences. And now you simply adapt without thinking: what do I want? So I think this course is very good, it is something that still lacking a bit.”

Fourth-year student

9.1 Approach

A research-through-design approach was used to create the final design, which means small aspects of the educational module were prototyped to be iteratively evaluated and further created with stakeholders. Some of this co-creation took place in sessions, some in individual meetings:

1. Co-creation session for the challenges with the Narrative Medicine staff
2. Co-creation session with four students to evaluate and further develop the workshop booklet of cycle C and the role of the facilitator
3. Co-creation session with four students to evaluate and further develop the workshop booklet of cycle E and the wrap-up cycle
4. Session with three students evaluate and adapt the hooks
5. Several individual meetings with a psychologist and a psychiatrist to create and evaluate the exercises for the workshops, and to base them on psychological models
6. Quick discussions with students about design decisions

Besides co-creation, the insights from previous chapters and opinions of stakeholders in previous sessions were used to design the educational module that will be described in this chapter. Still, more co-creations, evaluations and pilot tests have to be performed to finalise the whole module.

9.2 Module Structure

The design goal was to create an **educational module** to support UMCU students throughout their **residencies** in discovering and developing the **personally unique part of their Professional Identity,** via exploring and sharing **personal stories** in a **safe** and **stepwise** process. The final design is a module called AIO – Arts In Ontwikkeling (Doctor in Development), which is a wordplay on the term AIOS – Arts In Opleiding tot Specialist (Doctor In Training to Specialist). AIO achieves the design goal via workshops and challenges, spread over three years and mostly facilitated by peers. The stepwise process is designed on several levels. The module follows the phases of hook, feel safe, explore and evaluate (macrostructure). In the exploration phase, seven themes that support reflection on identity are addressed (mesostructure). Each theme consists of a start workshop, challenge and end workshop (microstructure), which allows the exploring and sharing of personal stories. Figure 9.1 shows an overview of these structures, each of which is briefly explained next. The following sections explain important design decisions made in relation to several parts of the course. Appendix 37 sets out more details and demonstrates how the design could fit in the existing curriculum.

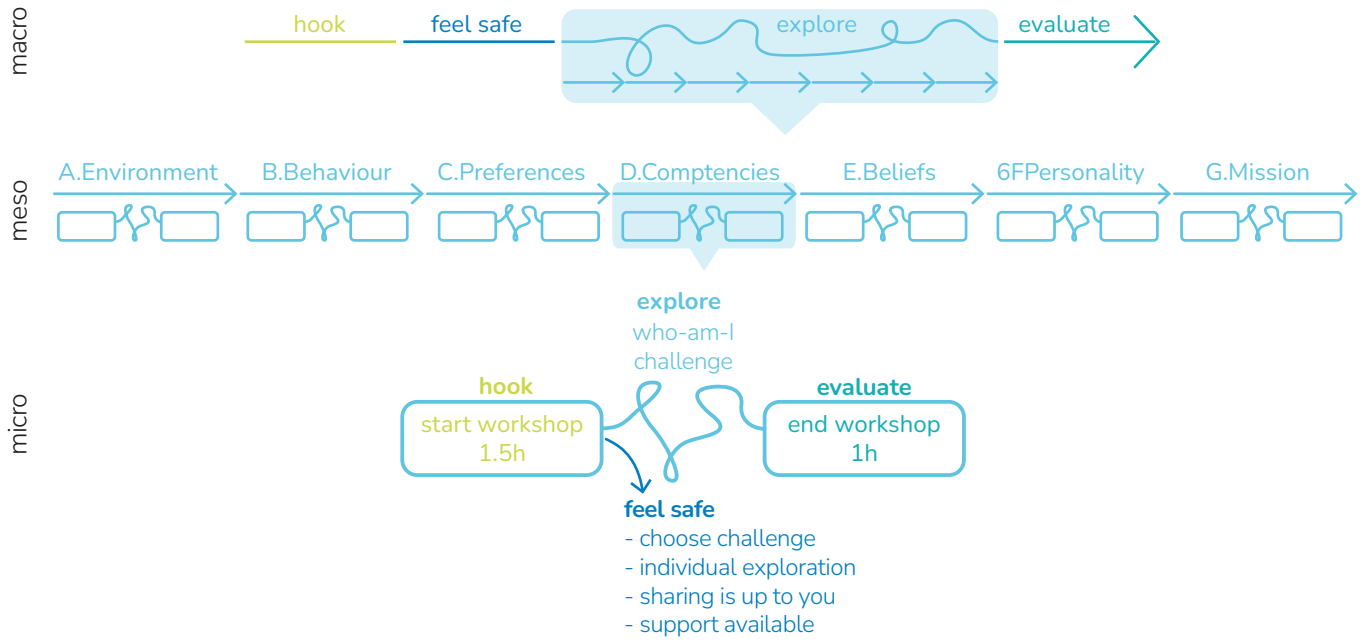


Figure 9.1: Macro-, meso- and microstructure of the course

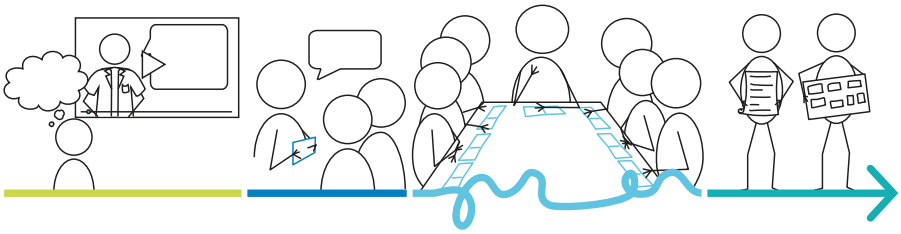
Macrostructure

The four phases defined in Chapter 6 form the basis of the course, see Figure 9.2. Phase 1, hook, takes place in the introduction class which is further explained in Section 9.3. Phase 2, feel safe, is addressed in several ways including the use of fixed and small groups throughout the module, the creation of group ground rules (see Section 9.3), the possibility to explore oneself individually in the form of challenges (see Section 9.4), and the use of peers as facilitators (see Section 9.6). Phase 3, explore, is the main part of the module and is completed collaboratively in workshops and individually via challenges (see Section 9.4). Finally, the evaluation phase takes place in the final cycle of workshops and challenges where students integrate all self-insights about the personal part of their PI in a creative self-presentation.

Mesostructure

In the exploration phase, students learn about themselves via seven themes/layers (see Figure 9.3). The themes come from framework I created in Chapter 7 by adapting the model from Korthagen (2004). This framework focusses on the past, present and the future (which was one of the desires found in the previous chapter). Each theme relates to identity, starting with more tangible aspects such as one's past and family (layer A - environment) and ending with one's future personal mission:

A. Environment: upbringing, family, friends, culture
B. Behaviour: habits, coping styles, lifestyle, intuition
C. Preferences: what makes you happy, gives you energy
D. Competencies: talents, experiences, boundaries
E. Beliefs: values, thinking patterns, expectations
F. Personality: attitude, characteristics, intellect
G. Mission: goal, dream, purpose, vision



1. Hook
thought experiment to arouse curiosity and a video to show the value of self-exploration
introduction class
Section 9.3

2. Feel safe
fixed groups, small groups, group ground rules
all classes
Sections 9.3-9.7

3. Explore
by sharing in groups and using stories in a variety of ways with who-am-I challenges
workshops and challenges facilitated by peers
Sections 9.4 and 9.6

4. Evaluate
combine your self-insights in a creative self-presentation
wrap-up cycle
Section 9.5

Figure 9.2: Each of the four steps addressed in the design (macrostructure)

Figure 9.3: Seven layers/themes of the exploration phase (mesostructure)

Microstructure

PI is dynamic and evolves over time, therefore the best way to support students in discovering and developing the personal, unique part of their PI is via a longitudinal course. To support students throughout their residencies, the course should start in year 3 and end in year 5. Most preferably, the first class is given after students had their first week of residency. Only then, they have experienced the discrepancy between their personal selves and professional selves and thereby see the necessity of this course.

The hook, feel safe, explore and evaluate phases return in each theme. The hook, feel safe and evaluate phases require the consistency of a fixed group, where the group members know each other and can help each other to take the reflection one step further. Exploration requires autonomy. Therefore, students are hooked in a start workshop, feel safe in various ways, explore together in the start workshop and individually via challenges, and evaluate in an end workshop (see Figure 9.4). The design decisions made for all parts in Figure 9.4 are explained in the next sections, Appendix 38 provides detailed content for the classes, workshop exercises and challenges.

Conclusion

The proposed design uses the four phases of hook, feel safe, explore and evaluate. The introduction class addresses the hook, workshops and challenges based on the framework adapted from Korthagen (2004) facilitate exploration, and a wrap-up cycle enables evaluation. A feeling of safety is created in several ways in all phases. The next sections explain the main design decisions made to appropriately support these four phases, thereby allowing students to explore and develop the personally unique part of their PI.

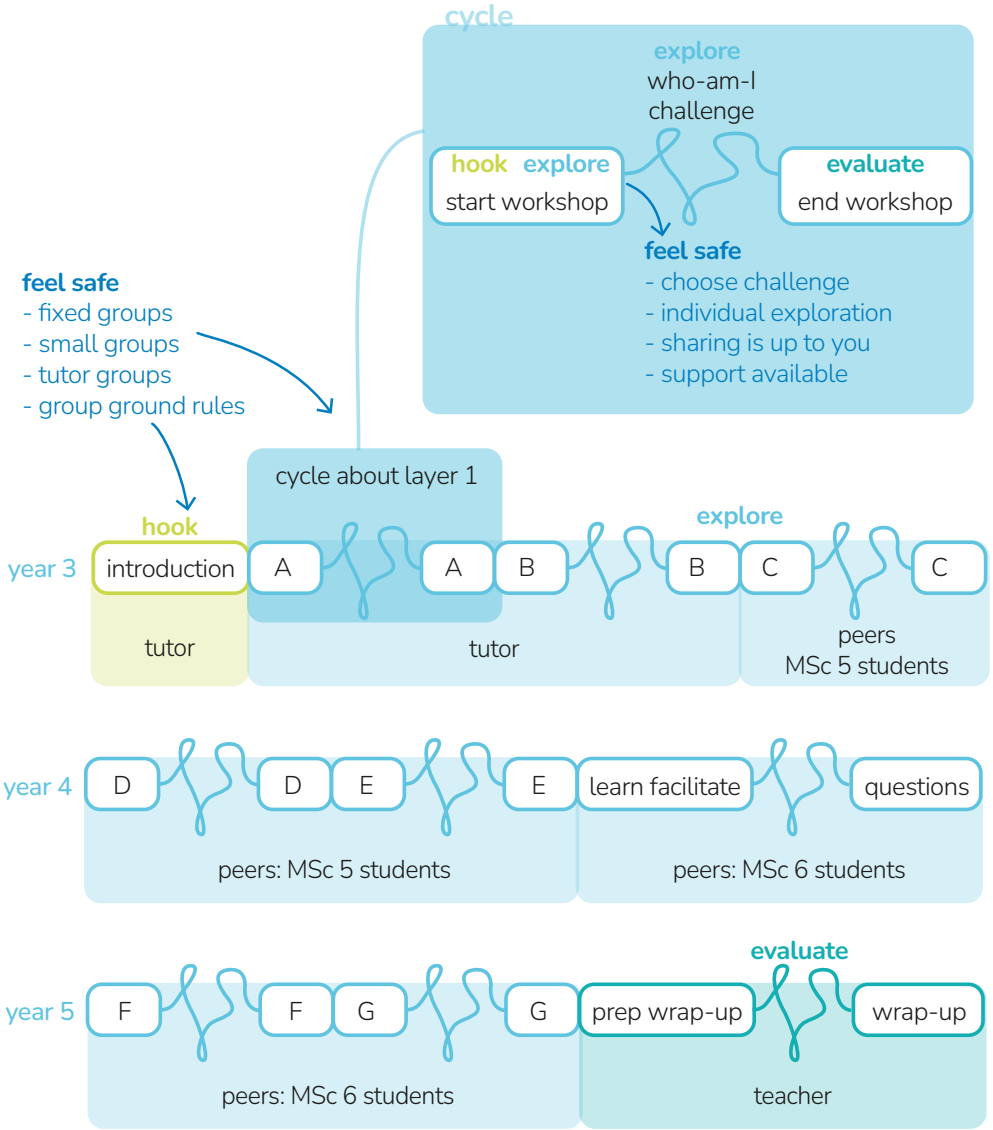


Figure 9.4: Workshop and challenge structure (microstructure)

9.3
Introduction Class

The main aims of the introduction class are 1) to hook the students for the course, 2) to explain the course content and structure, and 3) to set the first steps in creating a feeling of safety to open up (see Figure 9.5). For a hook to be useful, it is important that it resonates with the students and that it shows the value of self-development. Several hooks were created, evaluated and iterated upon with students to achieve these goals. The hooks that were designed are described in Appendix 39, the setup and results of the evaluation in Appendix 40. This evaluation showed that students have to be intrigued first, so they pay attention and are more willing to listen to the benefits of self-development. Therefore, the introduction class starts with a thought experiment to arouse curiosity for understanding oneself. Next, the goal of the course is described. Then the value of self-understanding for medical professionals is explained. The small study with students showed that such a value can best be explained in a video where A(N)IOS and medical specialists share their own experiences in relation to self-understanding and development.

After the hook, students receive additional course information (the second aim of the introduction class). All course information is summarised in the first booklet they receive: the course introduction booklet. Because PIF is a personal process and students may be at different stages in this process, the introduction booklet not only states the course goal but also provides space for students to define a personal. This personal goal will be used in the reflections of each end workshop and can be adapted when students change their views. The course introduction booklet as well as the accompanying handbook for the tutor are added as a prototype next to this thesis (in a separate PDF file).

The final aim of the introduction class is to set the first steps in creating a feeling of safety to open up. A feeling of safety is created in several ways. Most importantly, the introduction class ends with a small game to determine group ground rules together. These are agreements determined by the group about how to interact with each other in the workshops, what the atmosphere should be etcetera (see the prototype for more information). The group ground rules are repeated (and can be revised) in every start workshop. A feeling of safety may be further supported by making the introduction class (and the workshops of cycles A and B) part of the Tutoring track. During their bachelor's degree, students have a tutor supporting their development as a student. In their third year, the involvement of the tutor is currently limited and students expressed that they would like more support (see Chapter 4). Since the tutor and group members will have already known each other for two years, there should be a safe atmosphere to start working on oneself in the workshops.

Conclusion

In the introduction class, students are first hooked, then the course is explained, and then group ground rules are created as a basis for a safe atmosphere in the coming workshops. The introduction class is given by a tutor, as this person has already known the group for two years and such integration enables a smooth transition in education.

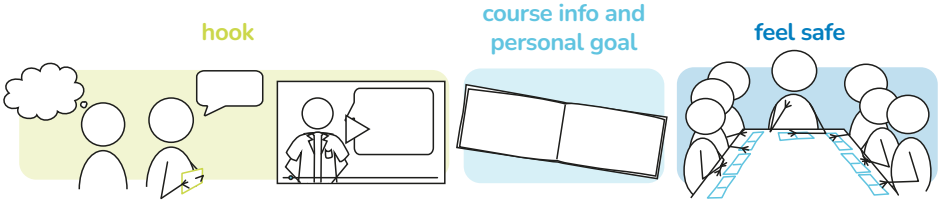


Figure 9.5: Setup introduction class

9.4
Workshops and Challenges

After students are hooked and a feeling of safety is created in the introduction class, it is time for self-exploration. The concept evaluation of the previous chapter brought forward several contradicting desires for supporting such self-exploration, see Figure 9.6. Each of these contradictions will be addressed in this section. Besides, some other important design decisions supporting self-exploration and feeling safe enough to do so are explained.

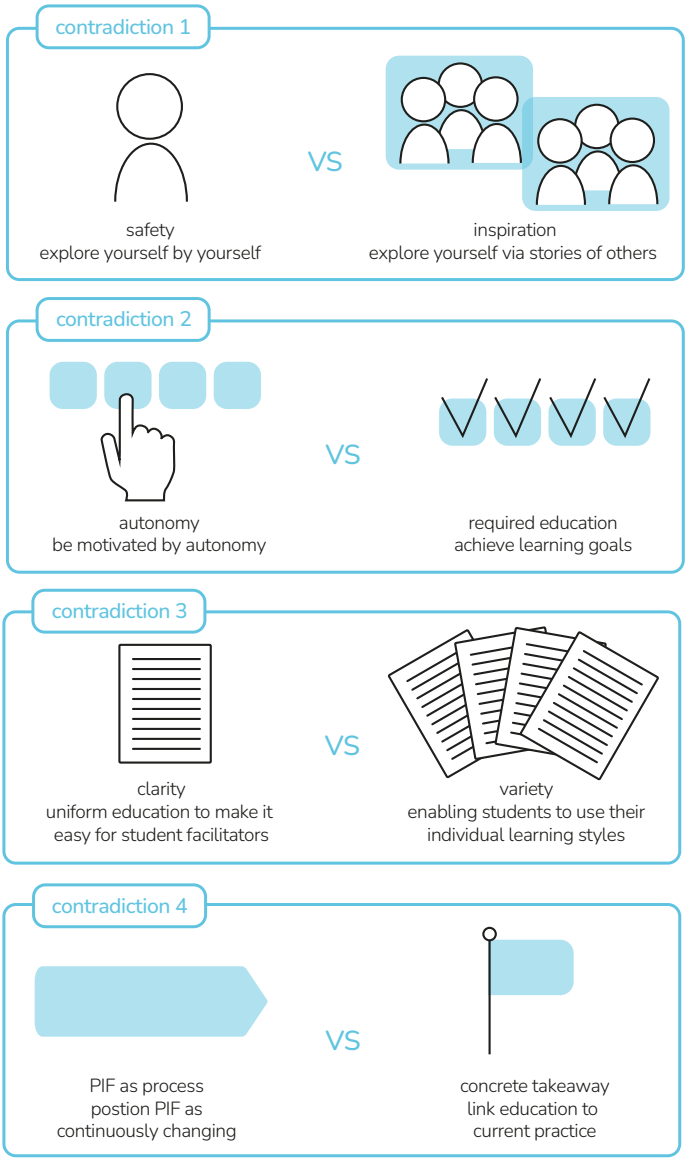


Figure 9.6: Four contradictions to address in exploration phase

For the first contradiction, Peer Power provided interaction in groups to inspire each other, while Identity Challenges provided autonomy to choose and safety to individually explore oneself. The final design solves this problem by alternating group workshops and individual challenges, see Figure 9.7. In each cycle of start workshop, challenge, end workshop, the phases of 1) hook, 2) feel safe, 3) explore and 4) return. It is especially phase 3 which requires autonomy. Phases 1, 2 and 4 actually require the consistency of a fixed group, where the group members know each other and can help each other to take the reflection one step further. The seven themes shown in Figure 9.3 are each addressed in this workshop-challenge-workshop cycle. The setup of this cycle is explained below.

Start Workshop

The workshops are centred around sharing stories and have a similar structure each time:

1. Warm-up (hook)
The warm-up is a sharing exercise related to the theme of the workshop to learn more about each other and the new facilitators. For example, in workshop C (preferences) students interview each other in pairs for one minute to collect as many of the other person's preferences as possible. Then, students introduce their partner to the group by mentioning the most interesting preferences they found. Appendix 41 further describes the rationale behind the exercise.

2. Ground rules (feel safe)
The next step is creating a feeling of safety. Therefore, the ground rules formulated in the introduction class are repeated and can be adapted if necessary.

3. Theme explanation
In collaboration with students, it was decided to have the theme of the workshop and its connection to previous and future themes explained by the facilitators. For this, facilitators receive a small text in their facilitator handbook to explain in their own words, see Section 9.6 for more information.

Figure 9.7: Workshop-challenge-workshop setup

4. Workbook (start exploring)

The second contradiction of Figure 9.6 explains that freedom is needed for self-exploration, but clear boundaries are necessary for appropriate education. This contradiction is addressed via the design of a workshop booklet (see Figure 9.8). This booklet contains individual and group exercises to spark discussions in the group. The exercises aim to expose the students to the broadness of the theme as well as its connection to their role as residents and medical professionals. These exercises are a form of support, not a strict requirement. Depending on the confidence of the facilitators and the interaction in the group, the workshop booklet can be followed more strictly or it can be used as inspiration. For all workshops, the booklet contains four exercises. The first helps students to collect all their thoughts and memories about the theme. This is followed by two deepening group and/or individual exercises follow. Finally, there is a reflective exercise.

Figure 9.8: Workbooks

Figure 9.1: Macro-, meso- and microstructure of the course

Each page contains a title, an icon indicating the kind of exercise, an explanation and space to do the exercise (see Figure 9.9). This figure also shows examples of the workbook exercises of workshop C. To explain how and why the exercises are created as they are, Appendix 41 describes the rationale behind the exercise structure in general and the exercise content of workshop C. Besides, workshop booklets for workshops A, C and E can be found in the prototype as these were fully designed in collaboration with students and a psychologist. The psychologist adapted the exercise to base them on psychological theories and created some exercises to appropriately support students in their self-development. Students provided feedback on both the content of the exercises (for example, exercises being too general or too inactive) and the form of the exercises (for example, tone of voice).

> *Medical students have the tendency to discuss a simple example for a long time. You have to quickly make the switch: 'OK, you understand how it works, we now move on to practice'.*
>
> Fifth-year student

5. Challenge choosing (explore deeper)

Students choose a 'who-am-I challenge' according to their interests. In the workshop booklet, there is space for the students to plan the challenge. The second contradiction of support vs. freedom also played a role in the design of this planning page. Students deemed it very important to be supported in planning and reminding themselves to do the challenges, but it should not feel like they are children. The co-creation resulted in the page shown in Figure 9.10, where students have the opportunity to plan the challenge and are urged to put a reminder in their phone on a date that suits them.

> *Just force them to put it in their phone, I would need that. Pick a date so that you will be reminded and do it, just halfway through.*
>
> Fifth-year student

6. Practicalities (feel safe)

In the challenges, students dive deeper into their past, present and/or future. This may lead to more questions about oneself or may arouse difficult emotions. Therefore, another aspect of the design creating a feeling of safety are the QR codes at the end of the workshop booklet (see Figure 9.11). These QR codes are connected to support and information available. Students found this page very helpful and suggested to keep the recommendations as general as possible. For example, in the first design this page contained a QR code for a specific passion as inspiration. This has been replaced with a more elaborate explanation about how and who you can contact, if you have a passion for a certain subject.

> *I really like 'be bold and send your role model an email' because people should just do that.*
>
> Fourth-year student

Figure 9.10: Planning of the challenge in the workshop booklet

Figure 9.11: Support page of the workshop booklet

Challenges

The third contradiction of Figure 9.6, enabling students to explore and develop themselves in a manner that suits their individual learning styles while limiting possibilities, can be solved by allowing students to choose from a limited number of challenges for their exploration. A small study into different learning styles showed that there are two leading frameworks: 1) the learning styles of Kolb (1984), and 2) the VARK model (Visual, Auditory, Read/Write and Kinaesthetic, Fleming & Mills, 1992), see Appendix 42. The learning styles of Kolb are more complex, and thereby are a less suitable tool for creating a variety of exploration challenges. Besides, the VARK model has a clearer relationship with storytelling. Therefore, the VARK model was chosen, see Figure 9.12. While the model differentiates between four distinct groups, a person often belongs to more than one group. For example, a person may be a visual learner in context A, but may desire reading/writing in context B. Kharb et al. (2013) showed that medical students have indeed multimodal VARK preferences. Therefore, the VARK model should be seen as a tool to create variety in the challenges, not as a restriction in the number or type of challenges to create. Figure 9.13 shows example challenges for each of the VARK learning styles, the rationale behind each of these is explained in Appendix 41. More challenges can be found in Appendix 38 and the prototype. The challenges of cycles A, C and E were evaluated with students. They only had positive reactions or additional ideas, and did not mention any desired adaptations.

> *It's just very short, which keeps it fun. Then you go to a boxing class, write a short column about it and thereby, you are still thinking about it.*
>
> Fifth-year student

It is advised to (also) create challenges in collaboration with employees and students. For example, tutors could use their experiences to create a challenge, the staff of Narrative Medicine (NM) could create challenges using arts and literature, psychologists could use their expertise to create a challenge etcetera. A few challenges were designed in collaboration to show the usefulness of such co-creation. Figure 9.14 shows one of the three challenges created with the NM staff, one of the three challenges created with a psychologist specialised in schema therapy and one of the two challenges created by a student (see Appendix 38 and the prototype for the other challenges).

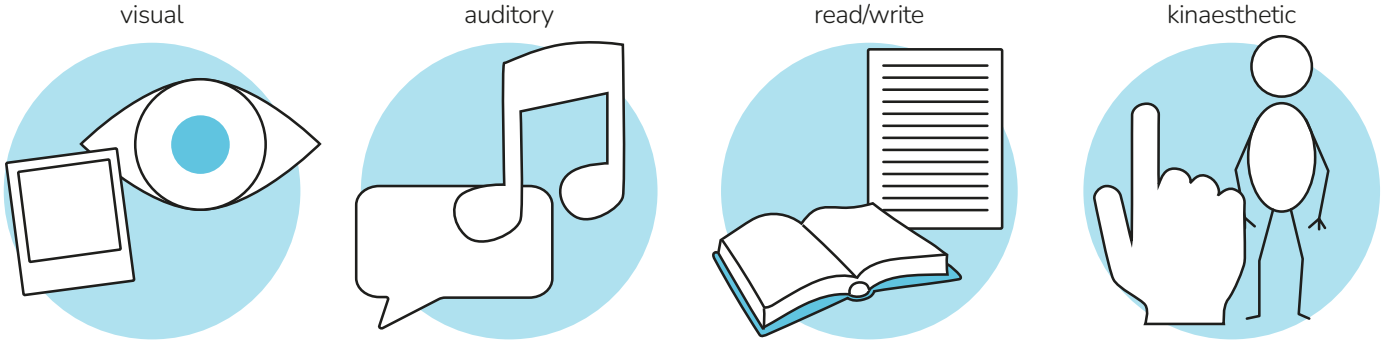


Figure 9.1: Macro-, meso- and microstructure of the course

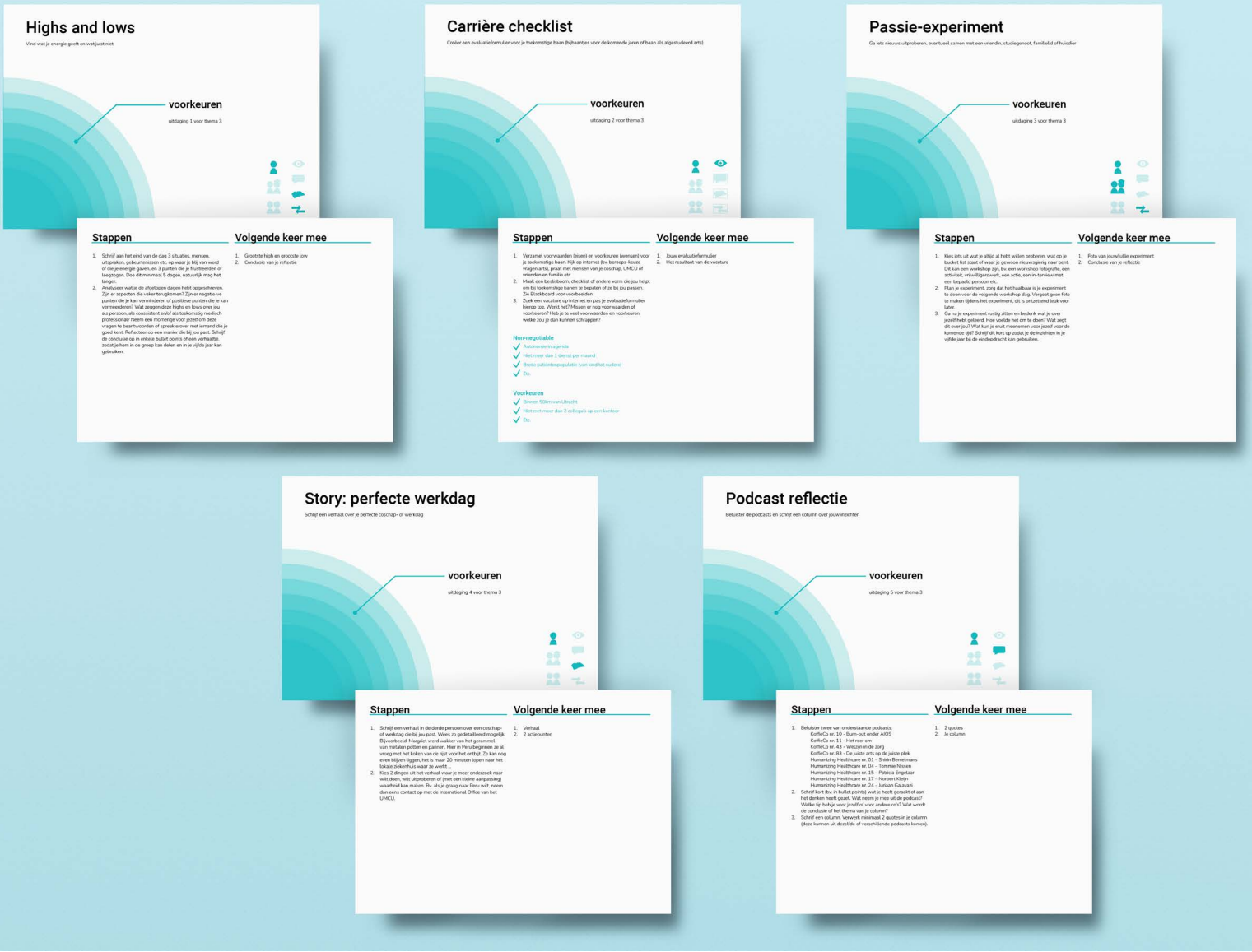


Figure 9.13: Example challenges for cycle C

Figure 9.14: Challenges created by staff and student

End Workshop

The fourth contradiction of Figure 9.6, namely that PIF should be positioned as an ongoing process while education should also provide concrete takeaways for the present, is addressed in the end workshop. The end workshop provides the time and space for students to share and evaluate their personal findings with others. Students look back to their personal goals formulated in the introduction class and write their insights on the last page of the workshop booklet as shown in Figure 9.15. To make the insights even more concrete, students extract at least one practical tip or takeaway and write this on the first page of the introduction booklet they received at the beginning of the course as shown in Figure 9.16. Since this page prompts them to look back to previous insights, students can see how they have changed over time and thus learn to see to developmental nature of PIF. Since the workshop is facilitated by peers these older students can share how they have changed on the topic of the workshop as they have done this exact workshop themselves a year (or two) earlier.

To make sure every student has finished the challenge before the end workshop, students are required to send the results of their challenges to their facilitators two days beforehand. This also enables facilitators to print the materials for the session. Since all facilitators will be residents, printing will not cost them anything. Students designed this structure of sending materials beforehand as they thought they would benefit from such a deadline and it would prevent them from attending the workshop without materials.

Conclusion

Students explore themselves via seven themes which are each addressed in a start workshop, who-am-I challenge and end workshop. The workshops are supported by a booklet containing exercises to provoke memories to share in the group. The challenges are performed individually to provide safety for self-exploration and to enable students to grow in their own way and at their own pace. Each theme has challenges supporting each of the different VARK learning styles. In the end workshop, students evaluate their self-insights and define a concrete take-away which they collect in the introduction booklet.

Figure 9.11: Support page of the workshop booklet

Figure 9.11: Support page of the workshop booklet

9.5
Wrap-Up Cycle

The introduction class hooked, the workshops and challenges supported exploration, the wrap-up cycle facilitates evaluation. The wrap-up cycle aims to support students in combining their self-insights of the last three years and in formulating a personal takeaway about who they want to be and become. The wrap-up cycle asks more from a facilitator than the cycles addressing one of the seven themes. It is therefore proposed to have teachers and not peers guide that final cycle, preferably a person who has experience with creative activities. For example, the staff of NM or teachers from the Utrecht School of the Arts (as proposed by one of the participants of the concept selection session, see Appendix 36).

Start Workshop of Wrap-Up Cycle

In the start workshop, the course goal is repeated and a brief discussion is held to allow students to share their reflections about the course. Then, four exercises are provided to support the students in gradually defining what they want to share in their final presentation and how they want to do this. The four exercises are shown in Figure 9.17 on the next page (the full booklet of the wrap-up cycle is added in the prototype). The 'how' (the form of the end creation) is kept open to allow students to express themselves in a form that suits them. Students have experienced a variety of mediums through the workshops and challenges in the three years of the course, and more inspiration is given in the workshop booklet.

> *I would give the opportunity to do what you want, because there are some people who did the almanac or made films with the education committee and they can really shine.*
>
> Fourth-year student

The content to be expressed in the end creation is defined more clearly, as students must meet the learning goals stated in the rubric (see Appendix 43). Still, the assignment is open enough for students to formulate a final take-away on their own level. For example, students can choose if they want to contextualise who they want to become in the near future (being a sixth-year student), medium-term future (having graduated) or long-term future (in a few years). Besides, some students may describe why a certain medical specialty fits them while others explain why they will start doing something else than medicine. Every student is unique and therefore will have a unique story to tell.

> *I think it is indeed instructive if the goal is clear: 'This is what I found out in my studies and that is why I think this specialty suits me.' Then you discuss that with each other.*
>
> Fourth-year student

Individual Work in the Wrap-Up Cycle

Just like the who-am-I challenges, the creation of the final self-presentation is planned in class. As additional support, students plan an individual conversation with the teacher. In this meeting, the teacher can help the students to further define their main takeaway or further develop the form in which they want to express it. The student and teacher can also discuss what the student wants to share in the end workshop. If the self-presentation would be too personal, the student can decide to only share the reflection.

End Workshop of Wrap-Up Cycle

In the end workshop, students share their self-presentations and the group asks questions. After sharing, students enrol for facilitating one of the workshops in their sixth year and they fill in the course evaluation. The teacher assesses if students passed the course, this assessment is further described in Appendix 43.

Conclusion

In the wrap-up, students combine their collected self-insights into a creative self-presentation. The exercises in the start workshop help students to gradually come to the main takeaway they want to present in their self-presentation. Students are free to choose how they express this main takeaway, but the content must meet the requirements of the rubric. Students create their self-presentations at home, with a 15-minute meeting with the teacher as support. In the end workshop, the self-presentations are presented and discussed.

Braindump: meest bijgebleven

2

Om de juiste connecties in het brein wakker te maken beginnen we met een korte brainstorm. Als je terugdenkt aan dit vak, wat komt er dan bij je op? Welke inzichten, momenten en ervaringen?

Dit kan van alles zijn, het kan over jezelf gaan of over een van de facilitators of medestudenten. Schrijf alles op wat in je opkomt.

Terugblik

3

In dit vak zijn er 7 thema's voorbij gekomen. Nu is het tijd om voor elk thema 1 of meerdere inzichten op te schrijven die je wilt meenemen. Wat is het meest belangrijke zelfinzicht? Wat zou je aan je toekomstige of vroegere zelf willen vertellen? Wat wil je meenemen naar je zesde jaar en verdere carrière?

Met name de reflecties de je hebt geschreven aan het eind van de workshops en uitdagingen kunnen hierbij helpen, maar je mag al je werkboekjes en materialen bekijken. Schrijf voor elk thema minstents 1 inzicht op in onderstaande vakken.

1. Omgeving
2. Gedrag
3. Voorkeuren
4. Competenties
5. Overtuigingen
6. Persoonlijkheid
7. Missie

Workshop faciliteren

Verleden, heden, toekomst

5

In de workshops en uitdagingen heb je onderzocht hoe je bent geworden wie je nu bent, wat jou uniek maakt en wie je zou willen zijn als persoon en als medisch professional.

Teken of beschrijf jezelf op deze drie tijdstippen: wie was je vroeger, wie ben je nu en wie wil je zijn? Je kunt de inzichten van de vorige opdracht gebruiken.

verleden | heden | toekomst

Hero, enemy en sidekick

6

Je zal jezelf altijd blijven ontwikkelen, zowel als persoon en als professional. Toch is het belangrijk af en toe helder te formuleren wat je visie op dit moment is. Daarom gaan we nog iets dieper in op de toekomst. Dit mag de nabije toekomst zijn (jij als zesdejaars), iets later (jij als afgestudeerde dokter), of heel veel verder (jij over een aantal jaar). Creëer (teken en/of beschrijf) jouw hero, enemy en sidekick.

Hero
Wie wil je zijn, wat zijn je sterke punten, wat wil je betekenen?

Enemy
Wie wil je niet zijn, wat wil je loslaten of veranderen?

Sidekick
Wat heb je nodig, wat zijn je zwakke punten, wie kan je helpen?

Eindcreatie

7

Creëer 'iets' om je zelfinzichten en takeaways voor de toekomst te tonen. Wie wil je zijn, welke keuzes wil je maken en hoe ga je dit uitleggen aan anderen.

Zowel voor de inhoud als de vorm ben je vrij om te kiezen wat bij jou past. Op deze pagina staan enkele eisen en tips.

Wat wil je overbrengen?

Voorbeelden
1. Uitleggen waarom een bepaald specialisme wel/niet bij jou past. Welke waarden, competenties of dromen maken jou geschikt. Waarom moeten ze jou als A(N)IOS aannemen?
2. Tonen welke keuzes je gaat maken in je zesde jaar en waarom. Hoe heeft dit vak hierbij geholpen?
3. Aangeven wat je van jezelf wel en niet mee wilt nemen in je vak. Hoe wil jij je gedragen en waarom. Wie is de professional die mensen voor zich hebben?
4. Toelichten waarom je iets heel anders wilt gaan doen als arts zijn, en waarom dit bij je past.
5. Etc.

Zorg ervoor dat duidelijk wordt
1. Waarom jij het belangrijk vind jezelf te kennen als medisch professional
2. Wat jou kenmerkt als coassistent/medisch professional
3. Wat de connectie is tussen je persoonlijke kenmerken en je rol als coassistent/medisch professional
4. Wie je was, wie je nu bent, maar vooral wie je wilt zijn
5. Hoe inzichten uit verschillende workshops en uitdagingen van de afgelopen jaren samenkomen

Hoe wil je dit overbrengen?

Voorbeelden
1. Gedicht
2. Vlog of video
3. Spel
4. Podcast waarin je jezelf of anderen interviewt
5. Toneelstuk
6. Presentatie
7. Tekening
8. Verhaal
9. Strip
10. Quote/tegeltjeswijsheid
11. Etc.

Zorg ervoor dat je eindcreatie
1. Door de docent gelezen/gezien/gedaan/gehoord/etc. kan worden (in overleg met de docent mag je besluiten je eindcreatie niet te delen in de groep als deze te persoonlijk is)
2. Voor de laatste workshop gemaakt kan worden
3. Past bij wat je wilt vertellen
4. Past bij wie je bent en waar je goed in bent

Figure 9.17: Exercises in the start workshop the of wrap-up cycle

9.6
Peer Facilitation

The evaluation with stakeholders in Chapter 8 showed that facilitating by peers creates a feeling of equality. The evaluation also showed that peers can share inspirational stories, while a teacher is better able to deal with personal struggles arising in the PIF process (according to some participants). Reviewing the exact quotes of participants shows that they only deem an official teacher required when students investigate their past. For example, certain participants indicated that they worry about the emergence of childhood traumas. Therefore, it is proposed to have a teacher (tutor) give the introduction class and the workshops of cycles A and B. The other exploration cycles are facilitated by students because facilitation by peers provides a safer atmosphere to share all of one's thoughts and struggles.

> *If it is someone you have been in a working group with, you have relaxed facilitators. Then you immediately get a different atmosphere than a teacher who says: I am the coach, you have to do this.*
>
> Fifth-year student

Besides, peer facilitation enables sharing of stories between different generations of students. Because the stories of older students are likely more relatable than those of teachers, peer facilitation better supports exploration of who one can and wants to be.

> *I think peer facilitation is really good because older students understand the younger ones very well and the other way around. Everyone always wants to know what the next residency is like.*
>
> Fourth-year student

Peer facilitation has even more benefits than the two described above. The other main benefits include the following:

1. By facilitating, students learn new skills important for being a medical professional, such as leadership and communication skills which are both described in the Raamplan 2020.
2. Students are motivated to attend the workshops when they know they have to facilitate those themselves later on.
3. When older students facilitate, fewer teachers are needed (according to earlier participants, the shortage of teachers is currently the biggest problem in education).
4. By facilitating a workshop which students have done as a participant earlier, they can see how they have changed over time. Seeing such change is important to understand that PIF is a continuous and lifelong process.
5. Helping other students by sharing your stories as a facilitator increases feelings of self-worth and helps in determining who one wants to be in the future (which is the ultimate goal of the course).

To fully use the power of peer facilitation to create a safe atmosphere and share stories, facilitators should have the freedom to adapt the workshops as needed. Still, certain boundaries have to be provided as the workshops are intended to be educational. There are four main ways in which this contradiction is addressed. Before explaining these four aspects, it is important to know that facilitators receive a facilitator handbook in which both general and workshop-specific information can be found. This handbook is provided in the 'learn-to-facilitate' workshop (see Figure 9.4) in which older students also share their experiences of facilitating. More information about the setup of this 'learn-to-facilitate' cycle can be found in Appendix 44.

First of all, balance between freedom and clear boundaries is created by providing eight facilitator principles in the handbook. These principles are not clear-cut rules but they provide direction in being a facilitator. Figure 9.18 on the next page summarises the principles, the handbook in the prototype explains them in greater detail.

> *You had also put in, which I thought was very good, that you are not responsible.*
>
> Fifth-year student

Second, there is more time scheduled for the workshop than required for the exercises. In the detailed design described in Appendix 37, the exercises take 70 minutes while there are 90 minutes scheduled for each workshop. Accordingly, the facilitators can spend more time on a certain topic when the group asks for it. For example, when one of the participants has an emotional story to share. When there is time left, a suggestion exercise is provided in the facilitator handbook. Third, a balance between autonomy and restriction is found in how the theme of each workshop is explained by the facilitators. For the theme introduction, the facilitator handbook provides a short explanation which facilitators can retell using their own words and experiences. According to students, this is the most desirable way of explaining the theme because it ensures that the theme introduction is not overly elaborated nor too subjective. This allows the participants to define for themselves what the theme means for them.

> *You don't need more than this general text. You can read this and then say something like it, but you don't need to make it a personal story. Then it is short and unbiased.*
>
> Fifth-year student

Finally, facilitators are supported to find their preferable way of facilitating by preparation questions and checklists at the end of the facilitator handbook, see Figure 9.19. In the time that is normally provided for the individual challenges, facilitator pairs further prepare the workshop they will facilitate. The end workshop is not a workshop but an hour in which facilitators can ask a teacher all their final questions.

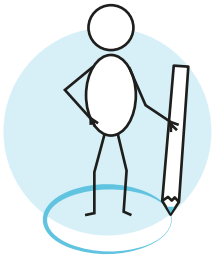
Conclusion

Peer facilitation has several benefits, but is limited to cycles C-G as the start and end require more didactic skills. To fully use the power of peer facilitation, facilitators should have enough autonomy while still feeling supported. A 'learn-to-facilitate' workshop and a handbook filled with tips and questions (instead of rules) support this balance.

Figure 9.19: Preparation page of facilitator handbook

1. Together in one boat
As a facilitator, you are part of the group and you do the exercises as well

2. Give a good example
Be an active listener and share your experiences first to inspire the group

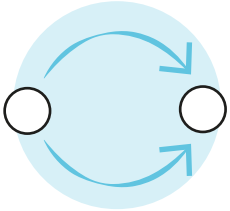


3. Accept boundaries
Value both your own boundaries and those of the participants

4. Take the time when needed
The handbook provides a time indication, take the time for emotional/personal stories

5. Balance in responsibility
Just as with patients, you are there for the student but his/her well-being is not your responsibility

6. Connect to residency
Connect the self-insights which participants share with their role as resident and later doctor



7. Take your own path
Emphasize that there are multiple ways to develop and present yourself

8. Stimualte interaction
Stimulate participants to ask questions and share experiences, that is the main workshop aim

Figure 9.18: The eight facilitator principles

9.7
Design of Materials

The design of the workbooks and challenges is minimalistic and abstract to allow students to make them their own and interpret them in their own way. Identity development is a personal process, so the assignments and input provided should be kept as neutral as possible. To easily distinguish the workshop booklet, challenges and facilitator handbook, three different colours are used, see Figure 9.20. All materials are created on A5 so students can easily transport them. A4 folders can be too big for some bags and students may be less willing to bring them.

Each challenge is explained on an A5 card which students can collect in their personal folders. The learning style is indicated via an icon to help students find their preferred learning style and to stimulate exploration of a variety of learning styles. These icons and the benefit of exploring different learning styles are explained in the introduction class and the introduction booklet (see Figure 9.21 and the prototype).

Since the Storybook concept was admired for its physical collection of materials, such a form of collecting is also enabled in the final design. Students get a plastic A5 folder in which all materials can be gathered, see Figure 9.22 on the next page. All materials from the workshops and challenges are collected in this personal folder. While it is the responsibility of the student to keep this folder safe, creating the possibility to upload pictures of one's work on Blackboard is advised. Collecting materials in a physical space allows students to easily look back and provides a feeling of progress, one of the requirements stated earlier. This feeling is also supported by collecting key takeaways in each end workshop as shown in Figure 9.16.

Figure 9.20: Colours of workshop booklet, challenges and facilitator handbook

Conclusion

The design is kept minimal yet attractive, both in its design and size. Physically collecting all materials supports seeing PIF as a process and tracking one's progress (thereby motivating the students).

Figure 9.21: Page of introduction booklet explaining how to choose a challenge

9.8 Assessment

An important part of education is assessment on the learning goals. Appendix 43 describes the learning goals and suggested form of assessment. When a student is not present for a short or long time, there are several options to redo or postpone parts of the course. Which option is most suitable depends on the new curriculum and study regulations. Facilitators can briefly assess the presence and effort after each end workshop, for the evaluation of the final self-presentation a rubric based on the learning goals is proposed. This rubric is open enough for students to formulate a final takeaway on their own level (see Appendix 43). Every student is unique and will therefore have a unique story to tell.

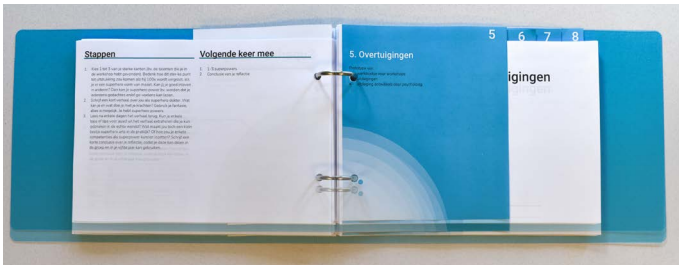


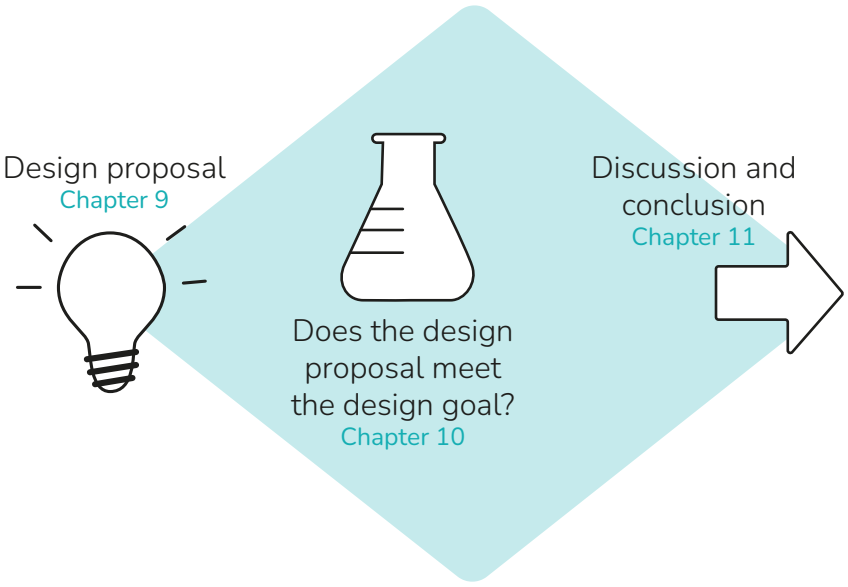
Figure 9.22: Folder to gather materials

Part C
Evaluation

A proposal for the final design has been formulated in Part B. Part C focuses on the evaluation, looks back at what this graduation has contributed, and looks forward to what steps remain. Chapter 10 addresses the evaluation, by first describing a pilot study performed to assess if the design proposal meets the design goal and overarching project goal and then using the Raamplan 2020 to evaluate if the design meets the requirements for medical education. The findings are discussed in Chapter 11, which also describes the limitations of this project, possible future steps, a conclusion and a personal reflection.

Part Content

10 Evaluation
11 Discussion and Conclusion



10 Evaluation

A pilot was conducted to evaluate if the design proposal can meet the design goal as well as the overarching project goal. This chapter describes the setup of the pilot, followed by the opinions of the facilitators and participating students about the education they gave/received. Thereafter, the design is evaluated with the wishes and requirements defined in Chapter 5 and the requirements of the Raamplan 2020 (to determine if the design proposal contributes to the development of the key competencies the Raamplan describes). Potential points of improvement indicated in these evaluations are described in the final section.

Chapter Content

10.1 Approach
10.2 Pilot Findings
10.3 Wishes and Requirements
10.4 Evaluation with the Raamplan 2020
10.5 Suggestions for Future Improvements

“I learnt more about what kind of doctor I want to be. Besides, it’s also enlightening to hear it from others. Now I know I can talk to them about it.”

Student on evaluation form

10.1 Approach

Multiple methods were used to evaluate if the design proposal has the potential to meet the design goal and overarching project goal. First of all, a pilot study with 32 students and ten facilitators was conducted. The pilot setup and approach for data analysis are described below, the findings can be found in Section 10.2. Secondly, the design was evaluated by comparing it to the wishes and requirements formulated in Chapter 5 (see Section 10.3). Besides evaluating the design proposal on its potential to meet the design goal and its desirability among students, it is important to take a broader view and evaluate the proposal in the context of medical education in general. In Chapter 1, the Raamplan 2020 was introduced, which provides specific competencies the Dutch doctor of 2025 and thereby the Dutch BSc and MSc medicine students should have (van De Pol et al., 2020). For the evaluation, the design proposal was compared to the end qualifications for a graduated master's student, since the designed educated mostly takes place in the master's. This evaluation is described in Section 10.4. The insights from all three forms of evaluations were combined to formulate possible improvements for the design. These improvements are presented in Section 10.5 and incorporated in the advised implementation plan described in Chapter 11.

Pilot Study

A pilot study was conducted to evaluate if the design proposal has the potential to meet the design goal and overarching project goal. Therefore, the overarching question for the pilot study was the following: Does the design support exploration and/or development of the personal side of Professional Identity Formation?

Based on the structure of the designed education, this overarching question leads to the following six research questions:

1. Does the design **hook** students to work on their personal development?
2. Does the design create a **feeling of safety** to open up?
3. Does the design support **exploration via sharing stories** with others?
4. Does the design enable students to further **explore their individual story**?
5. Does the design support students in formulating concrete takeaways (**evaluate**)?
6. Is the design practically **feasible**?

Research questions 1-5 mainly address the desirability of the design. When students are motivated, feel safe, can explore themselves and evaluate what their insights mean for their role as residents/medical professionals, their PIF process is stimulated. However, the design will still not be useful when it is infeasible. For example, when peer facilitation is not doable or when students lose their workbooks. Therefore, the final research question addresses the feasibility of the main design decisions made.

Pilot setup

To answer the six research questions, the third cycle of the designed course (preferences) was chosen to be evaluated, as this is the first cycle facilitated by peers (see Figure 10.1). It was decided to evaluate a cycle including peer facilitation because this type of education is not yet used in the curriculum. The pilot was performed as part of the regular education of Blok Blue and consisted of four aspects:

1. 15-minute introduction lecture (January 31st)
2. 1.5-hour start workshop (February 1st)
3. Individual who-am-I challenge
4. 1-hour end workshop (February 10th)

Since only a part of the design was evaluated and the time available for the introduction lecture was shorter than the time suggested in the design, the designed education had to be adapted to fit the pilot. These adaptations and the final setup for the pilot can be found in Appendix 45.

Data collection

The pilot was part of the regular education, so the start and end workshop were included in the classes for which 80% compulsory attendance applies. Unlike the students receiving the education, the facilitators' involvement was voluntary. The students were split up in five groups, so ten facilitators were arranged (see Appendix 46 for more details). The workshops were not recorded and the researcher only joined one of the groups to avoid influencing the group interactions. Therefore, the facilitators were the main source of data. As facilitators worked in pairs, each pair was asked to select a leader and an observer. The leader mainly led the workshop, by introducing the exercises, asking questions and promoting interaction. The observer stepped in when needed, checked the time and, most importantly, observed how the workshop went. To do so, questions were provided in the facilitator handbook (see Appendix 45). Altogether, the facilitators provided data in the following ways:

1. Notes written down by the observer during the start workshop.
2. Evaluations of the start workshop provided in audio or text (depending on the preferences of the facilitators).
3. Notes written down by the observer during the end workshop.
4. Evaluation forms at the end workshop containing both Likert scales and open-ended questions (see Appendix 47). The forms were completed by all ten facilitators.
5. Focus group with the facilitators, which was held two times: one time with five facilitators and one with four. One facilitator of group 24b was unable to attend either of the groups.

All 32 students were present at the introduction lecture and signed the evaluation form. In the start workshop, only two students were absent and one student received the education online because of top sports. In the end workshop, 30 students were present of which one online due to public transport problems. The two students were present in the start workshop. The reasons for their absence were public transport problems, rather than disliking the previous workshop. During the pilot, data was collected from the students in four ways:

1. Between the start and end workshop 28 students send their challenge to the researcher via mail.
2. Evaluation forms at the end workshop containing both Likert scales and open-ended questions (see Appendix 48). The form was completed by all 30 students present.
3. Focus group with six students: one from group 22a, one from 22b, two from 23 and two from 24a.

Data analysis

For the scores on the Likert scales, the averages and standard deviations were calculated. The open-eneded questions in the evaluation forms were processed by analyzing the number of times a certain answer was given and by selecting quotes best presenting the variety of answers. The facilitators' evaluations provided in audio and the focus groups with the students and facilitators were transcribed, follwed by a deductive analysis in which quotes were selected and coded based on the research questions (motivate, feel safe, share, explore individually, evaluate, feasibility). All results were then combined to formulate a final answer to each research questions, which is provided in Section 10.2.

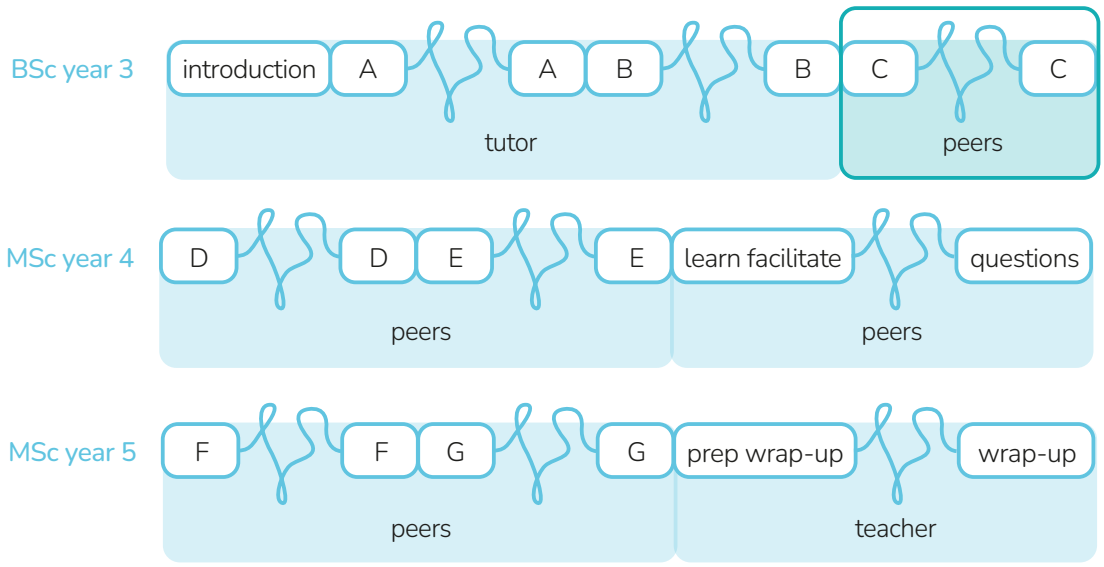


Figure 10.1: The cycle chosen for the pilot

10.2
Pilot Findings

This section combines the results from the evaluation forms, evaluation sessions, facilitator notes and delivered student challenges to answer the six research questions specified in the previous section. Some of the raw data is presented in this section to support the given arguments, a more elaborate description of the results can be found in Appendix 49. The answers to the six research questions will be combined at the end of this section, to determine if the design supports exploration and/or development of the personal side of Professional Identity Formation. Before diving into the specific research questions, a general opinion of students and facilitators on the designed education is provided.

Both students and facilitators were mostly positive about the education, especially about the open atmosphere, the new and creative forms of education, and the opportunity to share. This sharing was deemed most valuable as it allowed to vent struggles and frustrations about being a resident and about the healthcare cultures. In the workshops, subjects which are normally seen as taboo were discussed (for example, the fact that many pretend to like everything about the study medicine). According to both students and facilitators, the education filled a gap in the curriculum as it provided the time to stand still and think about where one wants to go to instead of just going on. Facilitating itself was deemed valuable as well, mainly because of the development of leadership skills and the opportunity to see how you have changed over the years. While tips and suggestions were provided, both facilitators and students also asked why there are only two workshops and not a full course since they would like to continue with it.

> *One of the few self-reflections that I found meaningful. Creative ways to reflect on your needs.*
> Student

1. Does the Design Hook Students to Work on Their Personal Development

The introduction class given in the pilot was not specifically experienced as motivating by the students. As explained in Appendix 45, this introduction class only had time for the thought experiment and course information. Interestingly, students proposed to have an A(N)IOS explain why personal exploration is important and how it has helped him/her, or to ask all students to write down a question which they would want to discover or answer in the course. These suggestions are exactly the parts of the introduction class that are integrated in the design (see Chapter 9), but for which no time in the pilot was available. One of the facilitators advised to not only have an A(N)IOS or specialist explain the value of self-exploration, but to also show scientific evidence for the benefits of doing so.

Besides explaining the value of self-exploration and allowing students to set a personal goal, both students and facilitators emphasised that they were most motivated because the education met their needs, mainly the need to share thoughts and struggles (see Figure 10.2). This was supported by the timing of the education (just before residency), interactive exercises, and peer facilitators who actively participated in the

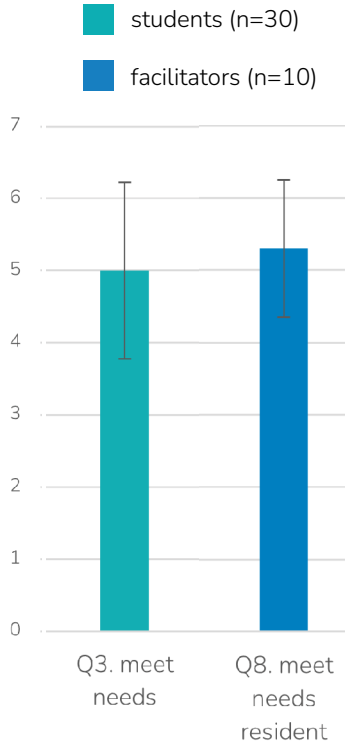


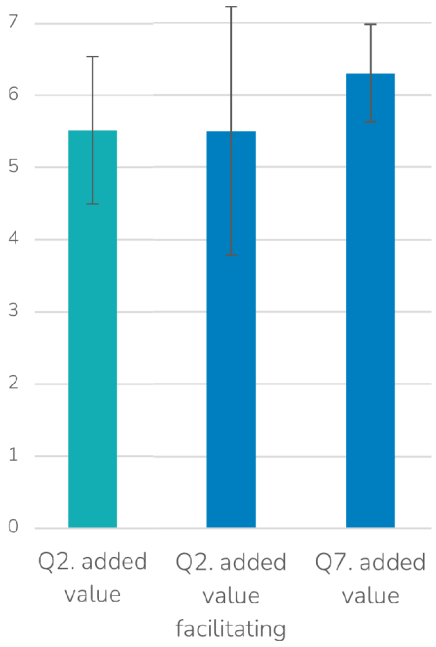
Figure 10.2: Students and facilitators indicated the design meets needs of residents

> *Just the actual talking about it and kniwing that you are not alone, that already has a lot of value for me.*
> Student

> *In our group, students said that they really started thinking after the first workshop. Then they also took that assignment seriously.*
> Facilitator

exercises. Just experiencing a workshop is thus the best hook as it resulted in both students and facilitators seeing the added value of the education in the process of becoming a medical professional (indicated by both qualitative and quantitative data, see Figure 10.3). The pilot already showed that word-of-mouth was a medium for creating motivation in students who had not joined yet, because students told each other after the first workshop how valuable it had been.

Students were not only motivated to come to the workshop, but also to do a challenge. 28 of the 30 students who joined in the second workshop had delivered their challenge on beforehand. Only three of those challenges did not meet the desired thoroughness of reflection. Furthermore, most students did not choose a challenge because it was quick and easy. They mainly chose one because it connected well to their current struggles or it was deemed helpful in their residencies. Still, the data suggests that the order in which the challenges are presented also has an influence, as can be seen in Figure 10.4. To further motivate students, one of the facilitators proposed to ask students to present their main findings in the workshop.



It makes you think about how to get the most out of your week and how to make choices that suit you and are good for you.
Student

100% a valuable addition because you think about being a doctor in another way. I am looking forward to the other classes!
Facilitator

Figure 10.3: Students and facilitators regarded the education as having added value in the process of becoming a medical professional

2. Does the Design Create a Feeling of Safety to Open Up?

The most important factor contributing to a feeling of safety was having older students as facilitators, especially when they shared their own experiences. Besides, having facilitators with different personalities proved beneficial: when the two facilitators had different experiences and perspectives, students had different opportunities in identifying with them. Figure 10.5 shows how both the quantitative and qualitative data show that peers as facilitators are supportive.

The sharing of students themselves also led to an increased feeling of safety, as students realised that they were not alone. Furthermore, the designed warm-up was seen as supportive in creating a safe atmosphere as it allowed students to get to know each other as persons instead of students. Two final small aspects creating a feeling of safety were the fact that no grade or final test was connected to the class and the fact that students were allowed (not required) to share their thoughts.

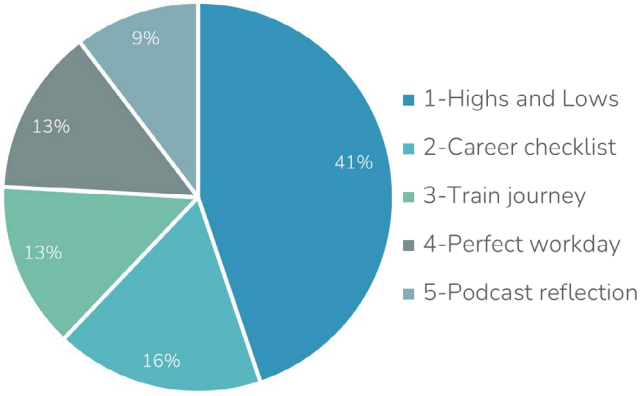
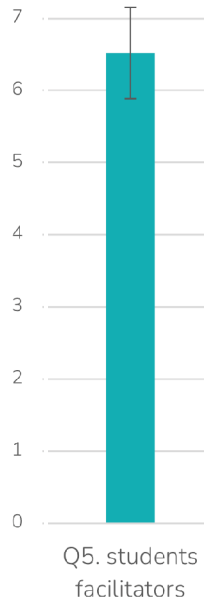


Figure 10.4: Percentage of students choosing each challenge

3. Does the Design Support Exploration via Sharing Stories with Others?

Both students and facilitators explained that the designed education optimally supports the sharing of stories. They indicated that the sharing felt natural and provided most value in the education, especially the possibility to talk about taboo subjects. Facilitators were surprised by the openness of the students and the deepness of the stories shared. For students, sharing supported the exploration of their opinions, of what they find important, and of who they want to be in the future. Besides the ability to vent and gain recognition, sharing led to providing tips, seeing other perspectives and creating a



Peer facilitation creates a very safe environment. With an AKO or AIOS, you might be less likely to say everything you think.
Student

When I had mentioned that I had also cried once during a residency, one of those students said 'I've had that too, first week.' Then the rest also dared to come.
Facilitator

Figure 10.5: Peer facilitators were the main contributor to creating a feeling of safety

culture among students to also talk about these subjects during residency.

> *There are so many uncertainties and talking about them in this way does give a lot of people a kind of support and certainty, especially if it is spread over the whole master's.*
> Student

Several aspects were seen as promoting the sharing of stories and experiences. First of all, the exercises (especially the physical ones) and challenges (especially when different challenges were chosen in the group) prompted sharing. However, both students and facilitators experienced that sharing is further promoted when the facilitators let go of the workbook once the conversation gets going. Still, they were seen as a useful prompt for the conversations and help to maintain structure in the workshops. Secondly, the sharing also led to more self-exploration when facilitators explained that the workshop did not aim to solve problems and when they asked deeper questions. Thirdly, the sharing of experiences was also supported and seen as more valuable when the facilitators had different personalities. This led to different perspectives being shared, allowing a variety of students to identify with either of the stories. Students even suggested to have an A(N)IOS or medical specialist pass by at some point in time to have perspectives even farther away in their career. Finally, smaller groups supported more thorough self-exploration via sharing.

> *I The workbook is a good starting point, but if the conversation later goes about something else that should be ok.*
> Student

To further encourage sharing, facilitators suggested to ensure a variety in exercises, including more physical exercises, and asking students to pitch/present after each exercise. Both students and facilitators advised to make the exercises less superficial in later workshop, as they would like to share more vulnerabilities and struggles instead of preferences and career choices.

> *I would love to 'really' talk with each other. Fears, difficulties, those sides of becoming a doctor.*
> Student

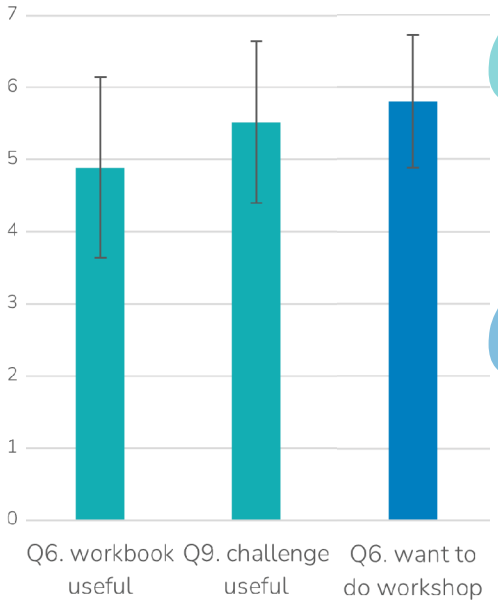
4. Does the Design Enable Students to Further Explore their Individual Story?

The facilitators concluded that the education had enabled students to think about themselves as persons, as residents in the coming residency, and as medical professionals in the future. Also, students greatly appreciated that the design forced them to pause. They explained that medicine is a study in which you just go on and that this education helped them to think about where they *want* to go. Several facilitators indicated that students said that they would never think about these subjects without this education. However, there were a few students who did already reflect by themselves and desired more challenging education.

> *Everyone does occasionally think: Hey, this is a bad week. Why so? During this course, you think about what it says about you. What do I want to do with that later? I think that's what this education is useful for.*
> Facilitator

Both the workbooks and the challenges were seen as helpful in self-exploration, see Figure 10.6. The timing of the education before residency allowed open-mindedness, the structure of the exercises supported gradually deepening reflections, and writing down insights in the workbook brought this even further. However, some students and facilitators indicated that the workbook could be compromised as exercises were explained by the facilitators and the biggest value of the workshops was the discussion with peers.

> *During the Blok, you can think about it in advance. Once you are in the residency, you might already be completely immersed in a certain kind of rhythm and then it is more difficult to think about 'what do I really want?'*
> Facilitator



> *It's very good to write it down, so you think about it for yourself very briefly.*
> Student

> *Students said that they liked having a longer time to think and philosophise about the challenges.*
> Facilitator

Figure 10.6: Challenges and workbooks were seen as helpful in self-exploration

The challenges helped most students to reflect more deeply and elaborately. Being forced to write down your thoughts, especially in your own time, was seen as beneficial. Besides, the possibility to choose a challenge promoted more in-depth exploration since it increased motivation. Only two facilitators doubted about doing a challenge in your own time as they indicated that some students will quickly do the challenge on the evening before. For those students, it may be more useful to do the challenge in class.

Students and facilitators also provided tips to enable deeper self-exploration. While the existing design was regared as fitting the capabilities of residents (see Figure 10.7), a common tip was to make the exercises more challenging. Furthermore, students desired to more creative and/or physical exercises and challenges (less writing).

5. Does the Design Support Students in Formulating Concrete Takeaways (Evaluate)?

The concreteness of takeaways varied per group and per student. In some groups, facilitators explicitly asked students how they had benefited from the workshops and challenges. The facilitators indicated that students did come up with concrete takeaways. Moreover, in groups where facilitators did not explicitly support evaluation, students provided tips to each other. However, while tips and tricks were shared, students did not experience them as takeaways. In both the evaluation forms and focus group, students emphasised a need to formulate concrete steps or action plans to act upon in their next residency and future career.

> *You can discuss the theory , like take your rest and go home on time and so on, but at the end of the day when you do your residency, it often doesn't work out anyway.*
> Student

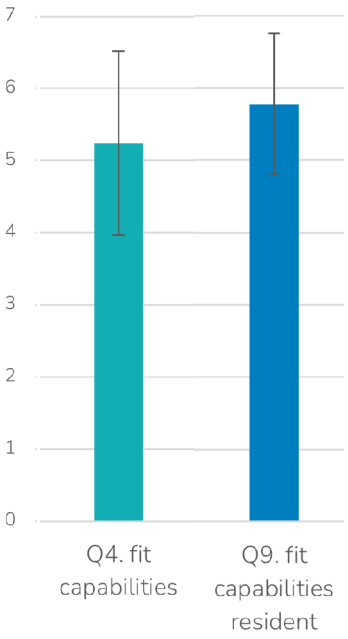
Besides defining concrete takeaways, they desired to know whether their new insights and intentions fitted the reality of clinical practice. Facilitators indicated they had difficulty making a connection with clinical practice.

> *They wanted a kind of reality check, what is feasible? I have these requirements and preferences now, but I don't want to have some kind of false hope that I can't live up to.*
> Facilitator

To support the evaluation step, facilitators proposed to state more clearly that the aim of the end workshop is to define concrete takeaways. Besides, it was suggested to set a distinct goal for the students to work to in the end workshop. This goal was created in the design proposed in Chapter 9, where each end workshop is rounded off by writing down your main takeaway on the overview page of the introduction booklet. However, the introduction booklet was not integrated in the design. Still, the facilitators could be better instructed to support the evaluation phase in the end workshop.

6. Is the Design Practically Feasbile?

Three aspects concerning feasibility were addressed in the evaluation forms and focus groups: the ability of all students to facilitate, the schedule of the workshops, and the form of collecting all materials. Regarding the *ability* to facilitate, students and most facilitators did not see any problems. Students indicated that everyone has experiences to share. Facilitators did not see problems because facilitating is done in pairs, in the official design students have had the workshop themselves one (or two) years earlier, and the handbook is extremely supportive. However, the problem with asking all students to facilitate may be a lack of *motivation*. Some students indicated they were not interested in facilitating, and the facilitators explained that without motivation the main message of the workshop will not be conveyed. Without motivation, a facilitator would not be beneficial for the group. The high standard deviations of the Likert scale scores in Figure 10.8 show this division in seeing *being able to* and *being motivated to* facilitate as a requirement for facilitation. To address the problem of motivation, facilitators adviced to ask or give the option between facilitating and teaching a different class. Even by making it voluntary, they expected enough students would want to be a facilitator, especially after having received the workshop from someone else.



> *Connects well and was not too difficult to start with. Later, though, it could go deeper.*
> Student

> *In our group, there was a dichotomy between students who had actually thought about these things on their own, but also students who don't think about it at all.*
> Facilitator

Figure 10.7: Design fitted the capabilities of residents, but could be more challenging in later workshops

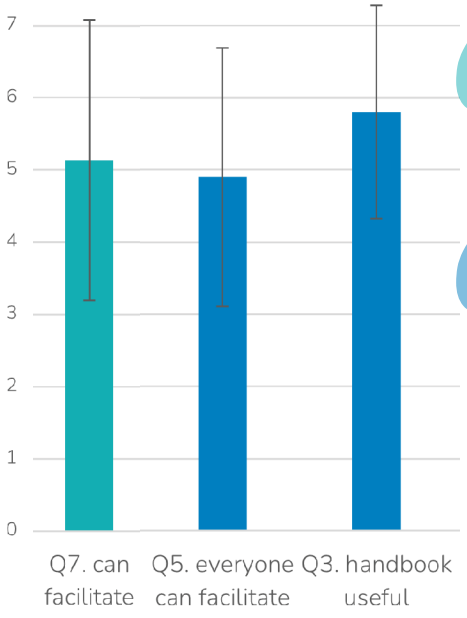
The workshop schedule was deemed feasible, when having a group size of five or six students. Both facilitators and students of the bigger groups explained that they sometimes had to rush through everyone's stories. One advice, which was already automatically implemented by some facilitators, was to include a break in the first workshop.

> *We had pretty good conversations in our in our group, but then it all had to be done very, very, very, very quickly because we wanted to discuss all the assignments.*
> Student

The main problem of the design as it was piloted is the way in which materials were collected, see also Figure 10.9. In the pilot students only received a paper workbook. Both students and facilitators indicated they would lose it. Several suggestions for improvement were provided. Both facilitators and students suggested to put all workshop exercises on one piece of paper so only one photograph has to be made and uploaded. Another suggestion from both students and facilitators was to collect the materials in something with a hard cover. A hard cover is indeed part of the design as described in Chapter 9. However, not enough plastic folders were available to be included in the pilot. A suggestion mentioned by only the facilitators was to spend the last five minutes of the workshop on digitalization. The desires for the design of such an online evironment were the possibility to see patterns (for example, by automatically generated graphs of answers given to a repeated numerical question), the possibility to choose between uploading a photo of your results or manually digitalizing them, and the possbility to not only use words but also images (for example, by using a online envrionment such as Miro).

Conclusion

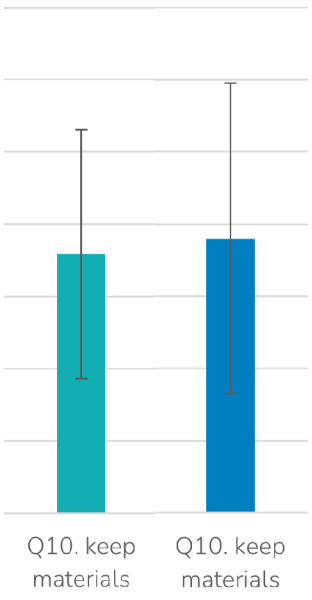
Students and facilitators were very positive about the education, only three aspects were actually required to be improved: the formulation of concrete takeaways and its link to practice, the motivation of students to facilitate, and the collection of materials. For other aspects, suggestions were brought up but the existing design already achieved the goals. Students are mainly motivated because the education meets their needs, they feel safe mostly due to peers as facilitators, the designed setting and materials (workbooks and challenges) clearly support sharing of stories, and students achieve deeper self-reflections because of the exercise structure and individual challenges. Regarding the evaluation phase, tips and tricks were shared but students did not experience the end workshop as leading to concrete steps or suggestions. The fact that the pilot did not include the introduction booklet in which all conclusions of the workshops are collected may have caused this problem. Besides, the goal of formulating concrete takeaways was not clear to all facilitators. Since this last phase of evaluation was not achieved, it may be concluded that the pilot setup did not fully support exploration and/or development of the personal side of Professional Identity Formation for students. However, other comments of both students and facilitators show that the workshops and challenges themselves already resulted in a better understanding of who they are and want to be as persons, as residents in their coming residency, and as medical professional later in life. Especially when the course is continued throughout the masters, students and facilitators explained, it will help them to become medical professionals who are more self-aware, are more resilient, have better leadership skills, and work in a place that suits them and enables them to use their passion.



> *I think it's good for everyone to do it, the question is whether everyone wants to.*
> Student

> *I think it's more about the motivation of people to do this in a fun way than that people wouldn't be able to do it. You've laid it out so well and structured, anyone can grab that handbook and do it.*
> Facilitator

Figure 10.8: Qualitative and quantitative data showing that a lack of skills is not the problem for facilitating, but motivation is



> *I would never use a screen in class, but you do want to be able to write the insights down somewhere and if it's all loose notes in notebooks, you don't keep it either.*
> Facilitator

> *If you limit the exercises to one A4 where you write down your answers and then you only have to take a picture of that one A4 and upload that.*
> Facilitator

Figure 10.9: The problem of collecting materials

10.3
Wishes and Requirements

The research phase of this graduation project (part A) resulted in a list of wishes and requirements (W&R) for the design. These have been used during the concept selection, but are also useful for a final evaluation of the design. This section discusses how the design performs on each of the eight themes in which the W&R were clustered in Chapter 5. An elaborated evaluation can be found in Appendix 50.

The final design meets all W&R of the first theme, student in charge. It does so by providing challenges to choose from, by supporting students to formulate their own course goal and workshop takeaways, and by giving students the responsibility for collecting and storing their materials. For the second theme, address assumptions, all requirements are met but not all wishes. The design does address the assumptions students have about what being a medical professional requires, but the assumptions from the system about the residents are not tackled. To fully enable residents to integrate their personal sides in their PI, the clinical environment will have to change as well. Further research is needed to develop interventions which can do so.

The design supports students with different backgrounds and in different stages of the PIF process, thereby it meets the requirements of the third theme (inclusivity). However, because peers facilitate most of the education the PIF process of teachers and medical professionals is not supported (which was one of the wishes). Since the staff is in a very different phase of PIF, it is deemed more suitable to create a separate intervention for them. Still, some of the created exercises and challenges may be interesting for teachers and professionals.

The W&R belonging to the theme of 'practical setup' focused mostly on the form of education (creative, in action), group size (small) and link to practice. The design contains a wide variety of exercises and challenges, workshops are in groups of six, and a link to practice is made by focusing each reflection on how the insights can be used ad as a resident/ medical professional. The only aspect the design lacks in is including the patient('s perspective). While the main problems around PIF lie in the interaction with colleagues and supervisors, the design could improve by, for example, providing more challenges which include patient interaction.

Peer facilitation accommodates a safe and open atmosphere in the workshops, which is what the W&R of the fifth theme ask for. The sixth theme described W&R related to the staff, which are mostly students in the design and a variety of teachers for the wrap-up. One of the wishes from the client was to include experts-by-experience. Unfortunately, the design has currently no role for them. It may be interesting to create challenges in collaboration with experts-by-experience as they can bring a new perspective.

The seventh theme described W&R indicating how to deal with theory, motivating students and assessment. This theme contains the only requirement that is not met: including a positive form of assessment. The assessment is not negative (i.e., creating competition among students and making students feel incompetent) but also not specifically positive. The problem of PIF assessment also arose in literature (Tagawa, 2019; Wald et al., 2015) and will need to be investigated for this specific design to improve the proposed rubric. For the eight theme, connection to client, all W&R are met but the design could improve by providing more theory about the PIF process.

Conclusion

All requirements except for 'include a positive form of assessment' are met. Most wishes are included in the design as well, with some improvements possible. These improvements are mainly about including a broader context in the PIF process of students. For example, including the patient, experts-by-experience and the healthcare system in which students will do their residencies.

10.4
Evaluation with the Raamplan 2020

The UMCU curriculum has to meet the requirements described in Raamplan 2020, hence it is useful to determine how the design already addresses these requirements next to the requirements created in this project (see Appendix 51). The design supports the development of key competencies from all seven roles of the CanMEDS framework (Frank et al., 2015), see Figure 10.10, but mainly those from the Leader and Professional. These roles entail competencies such as personal leadership and growth, individual wellbeing, and reflection. By facilitating a workshop themselves, the first competency of the Scholar role is accomplished as this entails the ability to provide education to others.

Besides the competencies, the Raamplan 2020 describes fields of knowledge and recommendations for educational formats. The design proposal fully encompasses one of the fields of knowledge which states that a graduated doctor knows the different dimensions of professional behaviour and can act upon them. Furthermore, some of the recommended educational formats are included, most importantly providing freedom of choice in the curriculum, enabling peer collaboration and education, providing time for personal development, and supporting uniqueness and diversity among students.

Conclusion

By including the design proposal in the UMCU curriculum, a large number of key competencies are addressed. Besides, one of the fields of knowledge and several recommendations for educational formats are included. This evaluation shows the design proposal is not only desired by staff and students, but also useful to meet the educational requirements of national institutions.

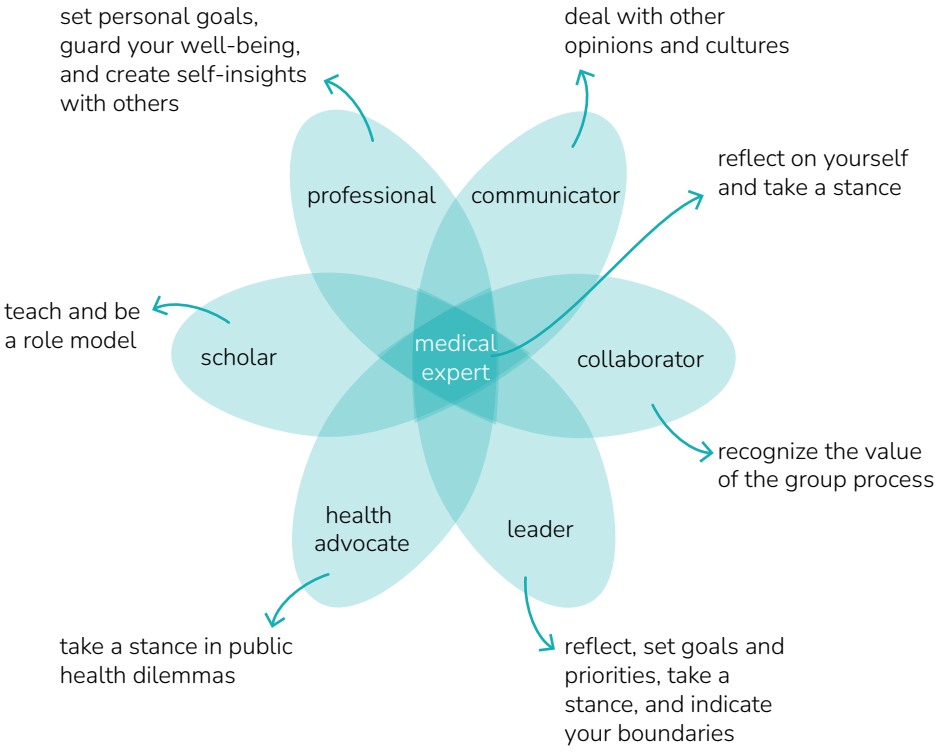


Figure 10.10: How the design supports competencies of each of the CanMEDS roles

10.5
Suggestions for Future Improvements

All three evaluations (the pilot study, the analysis on the W&R and the evaluation with the Raamplan) show that the design supports students to explore and develop the personal side of their PIF, but some improvements are possible.

Suggestions for the Introduction Lecture (Hook)

The pilot showed that most students are not hooked by the thought experiment. Students explained that they would be more motivated by having A(N)IOS/specialists tell from their experiences why exploring and understanding yourself is important. This shows that the video proposed for the introduction lecture (see Chapter 9) will probably be a useful hook, but it still has to be tested. Besides, it is advised to integrate three other components in a short talk during the introduction lecture: more information about the process of PIF (to meet wish 8.2), scientific evidence for the value of personal exploration (suggestion of facilitators), and the needs of students being met in the education (such as the opportunity to share struggles, receive tips from older students and talk about taboo subjects). The pilot results show that especially the last component will increase motivation for the course. Together, the suggestions lead to the setup of the introduction lecture shown in Figure 10.11.

Suggestions for the Start Workshop (Explore via Sharing)

The seven themes coming from the framework of Korthagen (2004) connect to several key competencies described in the Raamplan. However, some aspects could be mentioned more specifically to better address these competencies, for example, cultural differences and how to deal with them (Communicator – competency 4.1), the students' views on their roles in prevention (Medical Expert – competency 5.5) and public health dilemmas (Health Advocate – competency 3.1). It is advised to create workbook exercises addressing these subjects and/or to mention in the facilitator handbook to discuss these topics.

Other suggestions for the workbook exercises include adding more physically active exercises, making the exercises more challenging in later workshops, and focussing the discussions more on vulnerabilities. Besides, it is useful to evaluate all workbooks with students as the pilot showed that the first and third exercise of the workbook for cycle C-preferences are too similar. Therefore, these exercises have to be adapted and similar changes may be required for other workbooks. A final suggestion for the setup of the workshop is to create a repeating component. For example, one facilitator suggested to start each workshop by reflecting on your energy balance, so students learn to recognise their energy level.

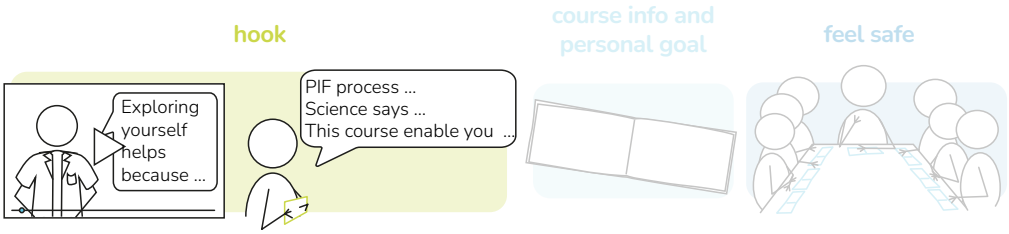


Figure 10.11: New suggested setup of the introduction lecture

Suggestions for the Challenges (Explore Individually)

To improve the challenges, more creative challenges should be created and the deliverable of some challenges could be adapted into something for which students do not have to write (as a student explained that this would feel less as an obligation). Furthermore, challenges may be created in collaboration with patients and experts-by-experience, as they provide a different perspective and this would lead to an integration of wish 4.3 and 6.3.

Suggestions for the End Workshop (Evaluate)

Most likely, the pilot did not lead to formulating concreate takeaways because 1) a quarter of the end workshop was spent on the evaluation form and 2) the prompt to fill in a concrete takeaway in the introduction booklet was missing. Still, it is advised to better explain to the facilitators that the goal of the end workshop is evaluating so they can explain this goal to the students. However, one of the main values of the education was the open discussion about struggles without the need to solve them. Therefore, the end workshop should be split op in a 'pitch your challenge/open discussion' part and 'evaluation' part, see Figure 10.12. Making this distinction clear will benefit both the students and facilitators. By better supporting the evaluation, competencies in the Raamplan are also better addressed. For example, Leader – competency 1.1.1 and competency 1.2.2 as these competencies state that students should be able to formulate concrete goals and set priorities.

Besides formulating concrete takeaways, students wondered if and how they could integrate their personal findings into the reality of residency/clinical practice. The advice is to have A(N)IOS/specialists attend in later workshops so they can provide this connection with practice. Including them would also support wish 3.1 (supporting the PIF process of professionals), wish 2.1 (adapt the system) and the recommendation of the Raamplan to expose students to a variety of role models. Still to effectively address the system, more research is needed.

Suggestions to Improve Peer Facilitation

To improve peer facilitation, facilitators could be better instructed and better supported. Regarding the instruction, it is advised to explain the balance between using the workbook as a prompt/for structure and letting go of it to create room for open conversations. Besides, the group discussions could be promoted by emphasizing that facilitators should dare to ask follow-up questions. To improve the facilitator support, the handbook can be enhanced by providing a short list of assumptions connected to the theme of the workshop for the facilitators to address (wish 2.2), providing more follow-up questions to ask (facilitator suggestion), making the handbook more concise (facilitator suggestion), explaining the connection between the exercise and being a resident/medical professional (facilitator suggestion), and combining the workbook and handbook for the facilitators so they do not have to flip back and forth during the workshop (facilitator suggestion).

With respect to the feasibility of peer facilitation, motivation of students to facilitate is the main issue. I advise to first pilot the full design since students may become motivated by experiencing workshops. For the first workshops of the pilot, enough facilitators can be recruited by asking students of the start course in year six. Otherwise, a useful suggestion of the facilitators was to combine peer facilitation with the obligation to teach KLO classes and enable students to choose between the two. Regardless, it is advised to create facilitator pairs who have different personalities as the pilot showed this has several benefits for both students and facilitators.

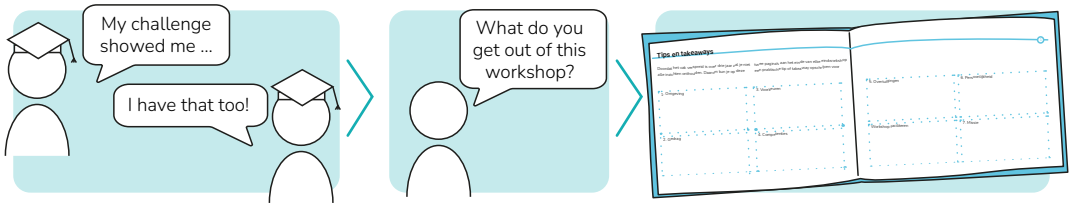


Figure 10.12: Suggested setup of end workshop

Suggestions for the Practicalities

Several suggestions were provided to improve the collection of materials throughout the course. I advise to test (combinations of) three of these suggestions (see also Figure 10.13): providing all students with a hard plastic folder to collect materials, putting all exercises on one A4 and asking students to upload a photo on Blackboard, and providing time at the end workshop to digitalise the main findings. This last suggestion may also benefit the formulation of concrete takeaways as this suggestion allocates specific time for takeaways.

Another practicality which has to be addressed is the form of assessment as requirement 7.2 asked for a more positive form of assessment than the one currently included in the rubric. Finally, the pilot showed that having fixed groups throughout all three years may not be necessary since the students of the pilot only knew each other for two weeks and a safe atmosphere was nevertheless created.

Conclusion

The pilot study, the analysis on the W&R and the evaluation with the Raamplan show that the design does support students to explore and develop the personal side of their PIF, but improvements are possible. Some improvements address several aspects found in the different evaluations at the same time, for example, by having A(N)IOS/specialists pass by in later workshops students are provided with a perspective of clinical practice (desire of pilot students), students are exposed to more role models (suggestion of Raamplan) and the PIF process of professionals is supported (one of the wishes). While all suggestions above follow from the evaluations, they should be tested after being implemented. An action plan for the process of adapting and testing is provided in the next chapter.

all materials in a plastic folder with a hard cover

exercises on one A4 to be photographed and uploaded

time in the end workshop to digitalize the main insights

Figure 10.13: Possible improvements for the collection of materials

11 Discussion & Conclusion

This final chapter begins by looking back to the main research question: how to support UMCU medicine students in their PIF process to prepare them for the healthcare challenges of the future? It is discussed how the designed education can answer this question, including limitations and implications for further research. Then, steps for future adaptations and implementation of the design are described. Thereafter, the conclusion follows. The chapter ends with a reflection on the personal learning goals set at the beginning of this project.

Chapter Content

11.1 Discussion
11.2 Next Steps
11.3 Conclusion
11.4 Reflection

“I think this is a really good idea. When the entire course with all those eight modules is integrated into the curriculum, then it really fits together and can be a really valuable addition to the curriculum.”

Facilitator

11.1 Discussion

Research has shown that the changing national and international healthcare systems require medical professionals with a developed Professional Identity (Cruess et al., 2014; Goldie, 2012; Wilkins, 2020). Both international research and national guidelines for medical education emphasise the responsibility of educators to support the PIF process of their students (Jarvis-Selinger et al., 2012; Kalet et al., 2017; van De Pol et al., 2020). Since the professional side of PIF is already addressed in the UMCU curriculum and attention to the personal side is lacking, the focus narrowed to supporting UMCU students in exploring the personal part of their PI.

The project has resulted in an educational module consisting of four phases: 1) hook the students for PIF education, 2) create a safe atmosphere to open up, 3) allow students to explore themselves, and 4) support them in evaluating what their self-insights mean for their role as residents/medical professionals. The pilot study showed that older students as peer facilitators play an important role in at least three of the four phases. Their stories hook students, their close connection to the students creates a safe atmosphere, and their experiences and questions promote exploration. The pilot study did not show the value of peer facilitation for the evaluation phase, partly because evaluation did not happen at all and partly because peers did not yet know all the ins and outs of clinical practice. With the right materials as support, they could use their residency experiences to help students in formulating takeaways for their studies and residencies. A(N)IOS/specialists could be involved at a later stage to help students look further into the future.

Besides peer facilitation, alternating between workshops in groups and providing choice in individual challenges supported exploration of the personal side of PIF. In the workshops, exploration happens via the sharing of stories. Stories of others allow exploration of a variety of situations, behaviours, choices and identities without physically experiencing them. Sharing of stories was stimulated by small groups and workbooks with creative and physical exercises. The challenges then allow a deeper exploration of one's own story. For the deeper exploration, the possibility to choose a challenge, the variety of learning modalities included in the challenges, and the provision of sufficient individual time to do the challenge turned out to be important. Recommendations for further improvement include creating more active exercises, creating more creative challenges, and adapting the method in which all materials are collected. Besides these design-specific recommendations, the research conducted in this project provides more general recommendations for supporting UMCU medicine students in their PIF process (see Appendix 52).

Strengths and Weaknesses

Within the boundaries of graduation, this project has different strengths and weaknesses. The main limitation is the focus on the educational context of UMCU. While international papers were included in the literature study, interviewees and participants of the sessions mainly studied/worked at UMCU. This compromises the generalizability of the findings. The general structure of the design applies to other (inter) national medical studies, but the content of the workshops is based on the UMCU culture and the recommendations for implementation are based on the UMCU curriculum and its educational organization. On the other hand, within UMCU a wide variety of stakeholders was included. Students from years 1-6, teachers, course coordinators, medical specialists and educational directors were involved. Thereby, the desirability, feasibility and viability were taken into account in the development (different people in the hierarchy now support the idea which supports implementation and further development).

The pilot study was part of the standard education, such that there was no selection bias in participating students. On the other hand, facilitators joined voluntarily and it can thus be concluded that these students were enthusiastic about facilitating and/or the topic of PIF. With less skilled and/or enthusiastic facilitators, the pilot results could have been less positive. Another limitation is the fact that only a small part of the final design (one cycle of workshop-challenge-workshop) was included in the pilot. Since PIF is a longitudinal process, it is difficult to conclude if the design supports this. Besides, students had only ten days to do the challenge in the pilot rather than 11 weeks. The challenges were adapted to decrease the workload but already with a timespan of ten days, two students had forgotten about the challenge. With a gap of 11 weeks, more students may forget to do the challenge which will affect the end workshop.

A final weakness is the approach used for data collection and evaluation. It was not possible to record or join all workshops. Therefore, data had to be gathered via the facilitators, evaluation forms and focus groups. It is suggested for future evaluations to enable recording, as will be discussed in the next section. However, the fact that the researcher was not present (physically or via recording) made sure that such a presence could not influence the experience of the students and facilitators.

Comparison to Other Research

Overall, the findings of the literature study, interviews and participatory sessions are in line with findings from other studies. Students participating in the sessions often expressed being afraid of losing their individuality and personal selves, just as the students in the study by Shapiro et al. (2021). Furthermore, the need for longitudinal support of PIF was emphasised by a variety of stakeholders, which is consistent with the findings of Kline et al. (2020) and Parsons et al. (2021). Finally, both students and professionals explained how role models, storytelling, interaction and reflection support the PIF process, which is similar to the findings in other studies (Chandran et al., 2019; Cruess et al., 2015; O'Doherty et al., 2021).

Some problems experienced by other researchers were addressed in this project. For example, Cruess et al. (2015), Maitra et al. (2021) and Wald et al. (2015) mention the problem of faculty education and availability. Because the design enables peer facilitation, the number of teachers needed is limited. Furthermore, Désilets et al. (2022) describe how the large number of reflection assignments required in PIF could lead to 'reflective zombies'. This is addressed in the design by having students reflect in a different, creative manner using wide variety of challenges.

The literature also describes challenges that arose in this project as well. For example, Wald et al. (2015) describe their difficulty with measuring the outcomes of PIF education. In this graduation project, an evaluation form was used for direct measurement after the pilot. However, since PIF education aims to prepare medical students for their future it is desired to implement long-term measurements. Such measurements should then evaluate the effect PIF education has on future physician wellbeing and patient care. Therefore, more research and longitudinal studies are needed as will be described in the next section.

One of the main problems this design does not solve is the medical culture in which residents come to work. The design supports students in their PIF process and in finding tips and tricks to help them stay close to themselves, but they can still be overwhelmed and challenged by a culture in which being a doctor and an individual is not yet the norm. Literature states that changing the system is one of the main challenges (Cruess et al., 2014; Fergus et al., 2018). I do agree, but I also think that the extensiveness of this challenge should not prevent us from starting now with educating the students who will define the culture of the next generation.

Implications of this Project

The results of this graduation project are valuable for the UMCU, other medical schools and (inter)national research into the PIF process of medical students. For UMCU, this project has resulted in a concrete suggestion for PIF education suiting their existing curriculum while being modular enough for easy adaptation to the new curriculum. By taking practical problems such as the availability of teachers and educational spaces into account, the design is not only desirable but also feasible. Having such a detailed course before the start of the curriculum revision may help in creating a new curriculum addressing the need for PIF. The pilot study showed that the design is desired by students, meets the wishes of staff members and suits the requirements of the Raamplan 2020 to which UMCU has to commit. Compliance with the Raamplan 2020 and the support from the educational board members of UMCU show that the design is viable.

This graduation project may not be as strong in the literature research as many of the PIF studies that were found, but it does provide a concrete design to be used as an inspiration. Many researchers describe the need for PIF education and provide a theory on how to do so, but concrete examples are rare. There are small suggestions such as the use of patient mentors (Kline et al., 2020), or very elaborate approaches for which trained staff is needed such as in the Healer's art curriculum (Lawrence et al., 2020). Other solutions provided were time intensive, such as the mentoring program of Sarraf-Yazdi et al. (2021) or addressed a different target group, such as the course for first- and second-year students of Désilets et al. (2022). The design created in this project is directly testable and concrete, while at the same time elaborate and longitudinal. Thereby, the design has a higher feasibility than suggestions of other researchers. Furthermore, it does not require much time from the staff due to peer facilitation and addresses the target group which most needs and is best able to start with PIF: residents. All in all, the educational module designed in this graduation project is desirable, feasible and a useful source of inspiration for educational developers and others working in the field.

Besides providing inspiration for the educational form and content of PIF courses, the project shows how these types of courses can be created. By repeatedly co-creating with several stakeholders and elaborately describing the methods and materials used, this study provides the tools to take this project further or adapt it to a different context. Especially the methods described in Appendix 53 are useful for such a co-creation process.

11.2
Next Steps

Chapter 9 describes a full design, but it is recommended to iterate upon this proposal and further develop the workshop exercises and challenges with UMCU/UU staff. Besides, only workshops C, E and the wrap-up have been evaluated with students and solely cycle C has been tested. To be able to state that the design supports the PIF process of students, the whole design will have to be included in a pilot and long-term measurements will have to be implemented. Some important steps to consider in the further development and evaluation of the design are shown in Figure 11.1. In short, the steps are the following:

1. Discuss with everyone who is involved in education for personal and/or professional development and create a team of people who will be responsible for this education in the new curriculum. This team can contact the revision committee to agree upon the pedagogical space available for PIF education.
2. Adapt the design based on the evaluation results from Chapter 10 and insights from the previous step.
3. Further design and co-create the education by using design methods in an iterative process.
4. Design the texts and materials which are adapted and which have not yet been made.
5. Perform a larger pilot in which more cycles can be tested and in which more rigorous data can be collected.
6. Iterate, based on the pilot results, with staff members, teachers, students, experts etcetera.
7. Perform a full pilot to be able to understand the effect of the design on the PIF process of students.
8. Bring the knowledge to the clinical and scientific communities.

The steps to take as well as essential and/or useful stakeholders to include in these steps, are elaborated upon in Appendix 54.

Besides investigating the effectiveness of the specific design, future studies could dive into the collaboration between designers and educational developers as well as the collaboration between designers and medical staff. This project has shown that using design methods for educational development results in innovative forms of education that make use of the strengths of different stakeholders. Designers are trained in including the user in the process, which may lead to education that students experience as more fun and useful.

However, more research may be needed to examine how students should be involved in the design process. Unlike the users of most designs, students (as the users of education) are not full experts on the design that will be created. Staff and teachers have certain goals and knowledge to share with the students. Thus, the role of the student may deviate from the role of a user in normal co-creation processes. In this project, this problem was solved by either including older/past students or only evaluating designs with students and not creating them. However, it may be interesting for both the world of design and the world of education to look further into this collaboration.

With regard to designing for the medical environment, future research could explore how collaboration with medical professionals can best take place. Interesting topics are how to motivate medical professionals (or their supervisors) to join co-creation activities as they have busy schedules, and how a designer can best do the contextual research to understand the specific medical environment. In this project, I was able to get a contract at UMCU, allowing me to see patients. Therefore, I could join residents in everything they do and obtain a good understanding of their experiences. It may therefore be useful for designers, especially those in the field of social and/or healthcare design, to create an overview of challenges and possible solutions for designing in the medical context.

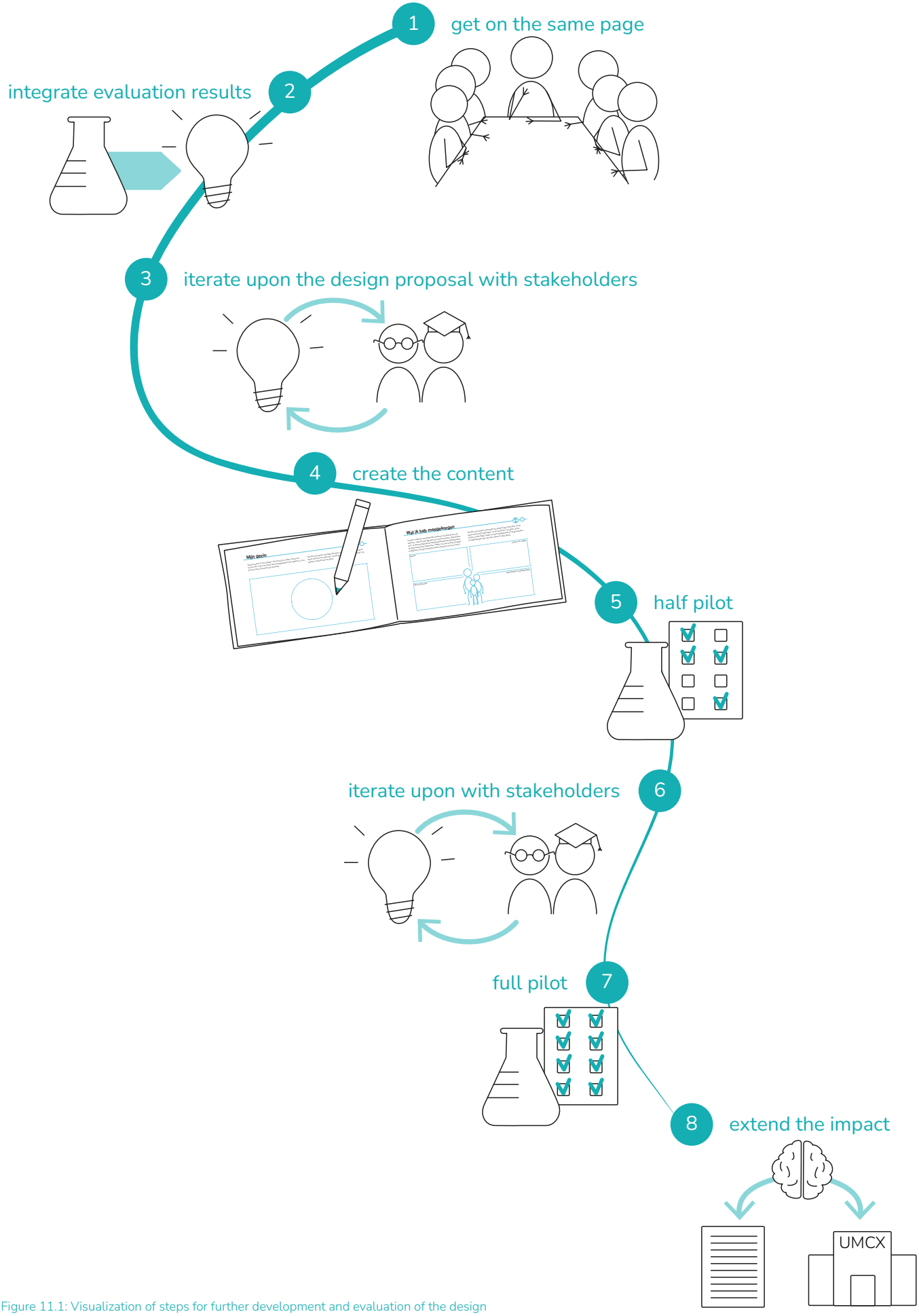


Figure 11.1: Visualization of steps for further development and evaluation of the design

11.3 Conclusion

This graduation project aimed to find out how to support UMCU medicine students in their PIF process to prepare them for the healthcare challenges of the future. The result is an educational module called AIO (Arts In Ontwikkeling/ Doctor In Development). AIO provides medical students the opportunity to explore the personal side of their PI throughout their residencies. Key in this exploration are the ability to share stories with peers, a safe environment created by older students, the alternation between sharing and individual time to reflect, and having physical and creative exercises for such reflection. The study has shown that the designed education is desired by students, feasible for the new curriculum, and viable as it enables UMCU to better meet the national requirements for medical education. Since AIO is modular, fills a gap in the existing education, and has detailed content to be easily used in practice, UMCU can use it right away in the curriculum revision that is starting. Thereby, PIF becomes an integral part of the education. Besides supporting UMCU in integrating PIF into their new curriculum, the research and design of this graduation project can be used as a source of inspiration for other (inter) national medical universities. The healthcare system has to change, medical professionals have to become more resilient, provide more human care and address a more complex set of problems than before. This healthcare transition is complicated, but the extensiveness of this challenge should not prevent us from starting now with supporting medical students to become the resilient, authentic and self-aware professionals the future needs.

11.4 Reflection

The previous sections reflected upon the findings and their implications for UMCU, students and medical education in general. In this final section, I would like to briefly address the personal learning goals I formulated at the beginning of the project (see Appendix 2).

Value of Psychological Knowledge for Design

In my future career as a designer, I would like to combine my personal experience and expertise in psychology with my professional design skills. Therefore, the first personal learning goal was to be able to illustrate how the combination of design and psychology can provide added value. In this graduation project, I was able to integrate psychology in several ways, most importantly by:

1. Investigating the psychological pressure in the medical culture, and thereby the psychological well-being of medical students.
2. Collaborating with psychiatrists and psychologists in creating the content of the design, by integrating their knowledge about human development, self-growth, behaviour change and self-reflection.

For both understanding the culture and collaborating with psychologists/psychiatrists, my knowledge of the healthcare system and my medical vocabulary turned out to be useful. This knowledge enabled me to casually talk to students. Because I could join the conversation, they felt like I was one of them and they were more open. As a result, I could gain a deep understanding of the residency culture and environment.

My knowledge supported me in collaborating with the psychologists/psychiatrists as they could talk freely without having to think (too much) about which words they used. I was then able to translate their ideas into non-medical terms to translate them to the field of design. Both examples show the usefulness of knowledge about the medical system and medical vocabulary for a designer in this field. I can use these examples to explain the value to future employers.

Value of Design in the Medical Context

While the first personal learning goal focused on showing the value of my skills and experiences to non-medical professionals, the second learning goal focused on being able to explain the value of design in the medical context. The term ‘social designer’ helped me in explaining this value. Besides, I now have another project to show and many quotes from participants describing why they think I can add value as a designer.

Still, only after experiencing co-creation people really started to see the advantages. During the project, I applied some small tricks to excite medical staff for the power of design. For example, people are often impressed by a good visualization. Besides, designers are used to creating and iterating while medical professionals are used to taking a lot of time for 'the first time right'. Quickly coming up with solutions enthusiasms them. Finally, the atmosphere you bring as a designer may encourage collaboration. Several times, I emailed or called someone 'higher in the hierarchy' without thinking too much about it. Most often, people found this inspiring and became curious. However, there have been times that I crossed lines I should not have crossed. As a social designer, it is important to keep a balance between supporting change in the institution/ organization you work for and following their cultural norms.

Skills in Generative Design

The third personal learning goal was to gain more generative design skills. This goal is definitely reached as I have collaborated with over 70 medical and/or educational professionals and students. However, I mainly used the same techniques and I would like to have experimented more. Besides, the meetings were sometimes more evaluation sessions than co-creation sessions as it was difficult to really co-create in one hour. In future projects, I think it is important to clearly state to the client that longer sessions are needed for even better results.

Stories in Design

The final personal goal was to explore the role stories can play in design. This project made me realize that stories are more than just 'stories'. It is about creating the opportunity to tell, create and share stories. It is about helping users to formulate stories, not creating stories for them. Besides, stories can be both a tool and an end result. Stories I collected in earlier interviews inspired participants in later sessions. They were a tool to spark discussions about a certain subject. Stories are also the medium in my final design, to learn about oneself and the culture one wants to work in.

Writing Skills

I like writing, but I have difficulty writing short texts. Planning meetings to discuss the deliverable worked well as my supervisors could show me how they would shorten it and why. Based on this insight, I will plan meetings with colleagues, bosses or other supervisors to not only discuss the process but also its documentation in future projects.

Conclusion

I learned a lot in this project, so I could describe many takeaways. For now, I want to point out five of them which can be extracted from the reflection above:

1. Take the time to become part of the environment, explore the context. It may not feel useful at the time, but the feelings, experiences and contacts will help you throughout the whole project.
2. Ask, but not too much. It is helpful to first discuss the appropriateness of contacting someone with your main contact or supervisor before sending an email or passing by.
3. Small tests are very useful. Most often I only had an hour with stakeholders (so 30-45 minutes were left for the session), as described above. However, I still gained many insights and I made many changes and decisions based on these meetings.
4. All you need is time and prompts. When you give participants the time and the right prompts, they tell a lot. Both students and professionals told me about their deep frustrations and even personal struggles because I devoted a large part of each session to creating the right atmosphere.
5. Share information about the design process and your needs. Non-designers are not used to the iterative and volatile character of the design process. Besides, it may be useful to explain that a three-hour co-creation session is a requirement since people only start to see the value when they join.

References

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. Academy of management review, 14(1), 20-39.

Barnhoorn, P., & Veen, M. (2021). 'Wie is daar?' Over professionele identiteitsvorming van de aios. Huisarts en wetenschap, 64(7), 55-57. https://doi.org/10.1007/s12445-021-1160-9

Barnhoorn, P. C., Houtlosser, M., Ottenhoff-De Jonge, M. W., Essers, G. T. J. M., Numans, M. E., & Kramer, A. W. M. (2019). A practical framework for remediating unprofessional behavior and for developing professionalism competencies and a professional identity. Medical Teacher, 41(3), 303-308. https://doi.org/10.1080/0142159x.2018.1464133

Bebeau, M. J., & Faber-Langendoen, K. (2014). Remediating Lapses in Professionalism. In (pp. 103-127). Springer New York. https://doi.org/10.1007/978-1-4614-9025-8_7

Bleakley, A. (2005). Stories as data, data as stories: making sense of narrative inquiry in clinical education. Medical education, 39(5), 534-540.

Chandran, L., Iuli, R. J., Strano-Paul, L., & Post, S. G. (2019). Developing "a Way of Being": Deliberate Approaches to Professional Identity Formation in Medical Education. Academic Psychiatry, 43(5), 521-527. https://doi.org/10.1007/s40596-019-01048-4

Clandinin, D. J., & Cave, M. T. (2008). Creating pedagogical spaces for developing doctor professional identity. Medical education, 42(8), 765-770.

Cohen, J. J. (2007). Linking professionalism to humanism: What it means, why it matters. Academic Medicine, 82(11), 1029-1032.

Cruess, R. L., Cruess, S. R., Boudreau, J. D., Snell, L., & Steinert, Y. (2014). Reframing Medical Education to Support Professional Identity Formation. Academic Medicine, 89(11), 1446-1451. https://doi.org/10.1097/acm.0000000000000427

Cruess, R. L., Cruess, S. R., Boudreau, J. D., Snell, L., & Steinert, Y. (2015). A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. Academic Medicine, 90(6), 718-725.

Désilets, V., Graillon, A., Ouellet, K., Xhignesse, M., & St-Onge, C. (2022). Reflecting on professional identity in undergraduate medical education: implementation of a novel longitudinal course. Perspectives on Medical Education, 11(4), 232-236.

Erikson, E. H. (1958). Young Man Luther. In: Norton New York:.

Erikson, E. H. (1968). Identity: Youth and crisis. WW Norton & company.

Evers, R. (2022). 4- Boekpresentatie 'Het is maar werk' ronde 3 en afsluiting. De Tijdstroom Uitgeverij. Retrieved October 2, 2022 from https://vimeo.com/649486520/8716fe0f33

Fergus, K. B., Teale, B., Sivapragasam, M., Mesina, O., & Stergiopoulos, E. (2018). Medical students are not blank slates: Positionality and curriculum interact to develop professional identity. Perspectives on Medical Education, 7(1), 5-7. https://doi.org/10.1007/s40037-017-0402-9

Fleming, N. D., & Mills, C. (1992). Not another inventory, rather a catalyst for reflection. To improve the academy, 11(1), 137-155.

Frank, J. R., Snell, L., Sherbino, J., & Boucher, A. (2015). CanMEDS 2015. Royal College of Physicians and Surgeons of Canada.

Fusar-Poli, P., Salazar de Pablo, G., De Micheli, A., Nieman, D. H., Correll, C. U., Kessing, L. V., Pfennig, A., Bechdolf, A., Borgwardt, S., Arango, C., & van Amelsvoort, T. (2020). What is good mental health? A scoping review. European Neuropsychopharmacology, 31, 33-46. https://doi.org/https://doi.org/10.1016/j.euroneuro.2019.12.105

Glas, G. (2021). Person-centred care in psychiatry: a clinical and philosophically informed approach. BJPsych Advances, 1-9.

Glas, G., Verhagen, P., Strijbos, D., Snoek, H., Putten, M., Londen, N., & Plas, F. (2018). Discussienota Taken, rollen en identiteit van de psychiater. In.

Goldie, J. (2012). The formation of professional identity in medical students: Considerations for educators. Medical Teacher, 34(9), e641-e648. https://doi.org/10.3109/0142159x.2012.687476

Gray, J. B. (2009). The power of storytelling: Using narrative in the healthcare context. Journal of Communication in Healthcare, 2(3), 258-273.

Green, M. C., & Jenkins, K. M. (2014). Interactive narratives: Processes and outcomes in user-directed stories. Journal of Communication, 64(3), 479-500.

Habermas, T. (2011). Autobiographical reasoning: Arguing and narrating from a biographical perspective. New directions for child and adolescent development, 2011(131), 1-17.

Haigh, C., & Hardy, P. (2011). Tell me a story—a conceptual exploration of storytelling in healthcare education. Nurse education today, 31(4), 408-411.

Hinkle, M. S., & Drew, M. (2020). The Reflective Counselor: 45 Activities for Developing Your Professional Identity. Routledge.

Holden, M., Buck, E., Clark, M., Szauter, K., & Trumble, J. (2012). Professional Identity Formation in Medical Education: The Convergence of Multiple Domains. HEC Forum, 24(4), 245-255. https://doi.org/10.1007/s10730-012-9197-6

Jarvis-Selinger, S., Pratt, D. D., & Regehr, G. (2012). Competency is not enough: integrating identity formation into the medical education discourse. Academic Medicine, 87(9), 1185-1190.

Joseph, K., Bader, K., Wilson, S., Walker, M., Stephens, M., & Varpio, L. (2017). Unmasking identity dissonance: exploring medical students' professional identity formation through mask making. Perspectives on Medical Education, 6(2), 99-107. https://doi.org/10.1007/s40037-017-0339-z

Kalet, A., Buckvar-Keltz, L., Harnik, V., Monson, V., Hubbard, S., Crowe, R., Song, H. S., & Yingling, S. (2017). Measuring professional identity formation early in medical school. Medical Teacher, 39(3), 255-261. https://doi.org/10.1080/0142159x.2017.1270437

Kay, D., Berry, A., & Coles, N. A. (2019). What Experiences in Medical School Trigger Professional Identity Development? Teaching and Learning in Medicine, 31(1), 17-25. https://doi.org/10.1080/10401334.2018.1444487

Kharb, P., Samanta, P. P., Jindal, M., & Singh, V. (2013). The learning styles and the preferred teaching—learning strategies of first year medical students. Journal of clinical and diagnostic research: JCDR, 7(6), 1089.

Kline, C. C., Park, S. E., Godolphin, W. J., & Towle, A. (2020). Professional Identity Formation: A Role for Patients as Mentors. Academic Medicine, 95(10), 1578-1586. https://doi.org/10.1097/acm.0000000000003561

KNMG. (2021). Beroepskeuze. Retrieved October 13, 2022 from https://www.knmg.nl/opleiding-herregistratie-carriere/geneeskundestudie/beroepskeuze-1.htm

Kolb, D. A. (1984). Experiential Learning: Experience as the Source of Learning and Development (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall.

Korthagen, F. A. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. Teaching and teacher education, 20(1), 77-97.

Lawrence, E. C., Carvour, M. L., Camarata, C., Andarsio, E., & Rabow, M. W. (2020). Requiring the Healer's Art Curriculum to Promote Professional Identity Formation Among Medical Students. Journal of Medical Humanities, 41(4), 531-541.

Lawson, L., Knudson-Martin, C., Hernandez, B. C., Lough, A., Benesh, S., & Douglas, A. (2017). Student Healthcare Clinicians' Illness Narratives: Professional Identity Development and Relational Practice. The American Journal of Family Therapy, 45(3), 149-162. https://doi.org/10.1080/01926187.2017.1322926

Lemmens, L., de Bruin, S., Beijer, M., Hendrikx, R., & Baan, C. (2019). Het gebruik van brede gezondheidsconcepten: inspirerend en uitdagend voor de praktijk [Using broad health concepts: inspiring and challenging in practice]. D. N. I. f. P. H. a. t. Environment.

Lewin, L. O., McManamon, A., Stein, M. T., & Chen, D. T. (2019). Minding the form that transforms: using Kegan's model of adult development to understand personal and professional identity formation in medicine. Academic Medicine, 94(9), 1299-1304.

Liao, H.-C., & Wang, Y.-H. (2020). Storytelling in Medical Education: Narrative Medicine as a Resource for Interdisciplinary Collaboration. International Journal of Environmental Research and Public Health, 17(4), 1135. https://doi.org/10.3390/ijerph17041135

Maitra, A., Lin, S., Rydel, T. A., & Schillinger, E. (2021). Balancing Forces: Medical Students' Reflections on Professionalism Challenges and Professional Identity Formation. Family Medicine, 53(3), 200-206. https://doi.org/10.22454/fammed.2021.128713

Marcia, J. E. (1966). Development and validation of ego-identity status. Journal of personality and social psychology, 3(5), 551.
McAdams, D. P. (1988). Power, intimacy, and the life story: Personological inquiries into identity. Guilford press.
McAdams, D. P. (2011). Narrative identity. In Handbook of identity theory and research (pp. 99-115). Springer.
McLean, K. C., & Fournier, M. A. (2008). The content and processes of autobiographical reasoning in narrative identity. Journal of research in personality, 42(3), 527-545.
McLean, K. C., & Pasupathi, M. (2012). Processes of identity development: Where I am and how I got there. Identity, 12(1), 8-28.
Mittendorff, K., Van der Donk, S., & Gellevij, M. (2012). Kwaliteit van Reflectie. Onderzoek naar de kwaliteit van SLB programma's en reflectieprocessen van studenten. In: Enschede: Saxion Hogescholen.
Monrouxe, L. V. (2010). Identity, identification and medical education: why should we care? Medical education, 44(1), 40-49.
Nooteboom, L. A., Kuiper, C. H. Z., Mulder, E., Roetman, P. J., Eilander, J., & Vermeiren, R. R. J. M. (2020). What Do Parents Expect in the 21st Century? A Qualitative Analysis of Integrated Youth Care. International Journal of Integrated Care, 20(3), 8. https://doi.org/10.5334/ijic.5419
O'Doherty, D., Culhane, A., O'Doherty, J., Harney, S., Glynn, L., McKeague*, H., & Kelly*, D. (2021). Medical students and clinical placements - a qualitative study of the continuum of professional identity formation. Education for Primary Care, 32(4), 202-210. https://doi.org/10.1080/14739879.2021.1879684
Orsmond, P., McMillan, H., & Zvauya, R. (2022). It's how we practice that matters: professional identity formation and legitimate peripheral participation in medical students: a qualitative study. BMC Medical Education, 22(1). https://doi.org/10.1186/s12909-022-03107-1
Park, G. M., & Hong, A. J. (2022). "Not yet a doctor": medical student learning experiences and development of professional identity. BMC Medical Education, 22(1). https://doi.org/10.1186/s12909-022-03209-w
Parsons, A. S., Kon, R. H., Plews-Ogan, M., & Gusic, M. E. (2021). You can have both: Coaching to promote clinical competency and professional identity formation. Perspectives on Medical Education, 10(1), 57-63. https://doi.org/10.1007/s40037-020-00612-1
Plat, T. (2022, August 9). Het roer om! - Tineke Plat (No. 11) [Podcast]. In KoffieCo - Arts of toch niet? Spotify.
Rabow, M. W., Remen, R. N., Parmelee, D. X., & Inui, T. S. (2010). Professional formation: extending medicine's lineage of service into the next century. Academic Medicine, 85(2), 310-317.
Rees, C. E., & Monrouxe, L. V. (2018). Who are you and who do you want to be? Key considerations in developing professional identities in medicine. Medical Journal of Australia, 209(5), 202-203.
RISHI. (2022). Healer's Art Overview. Retrieved October 1, 2022 from https://rishiprograms.org/Healers-art/
Rode, H. (2021, July 7). Zelfzorg voor artsen [Podcast]. In Het is maar Werk, podcast voormedici. Spotify.
Rode, H. (2022). 4- Boekpresentatie 'Het is maar werk' ronde 3 en afsluiting. De Tijdstroom Uitgeverij. Retrieved October 2, 2022 from https://vimeo.com/649486520/8716fe0f33
Sanders, E. B.-N., & Stappers, P. J. (2012). Convivial toolbox: Generative research for the front end of design. Bis.
Sarraf-Yazdi, S., Teo, Y. N., How, A. E. H., Teo, Y. H., Goh, S., Kow, C. S., Lam, W. Y., Wong, R. S. M., Ghazali, H. Z. B., Lauw, S.-K., Tan, J. R. M., Lee, R. B. Q., Ong, Y. T., Chan, N. P. X., Cheong, C. W. S., Kamal, N. H. A., Lee, A. S. I., Tan, L. H. E., Chin, A. M. C., . . . Krishna, L. K. R. (2021). A Scoping Review of Professional Identity Formation in Undergraduate Medical Education. Journal of General Internal Medicine, 36(11), 3511-3521. https://doi.org/10.1007/s11606-021-07024-9
Seligman, M. (2018). PERMA and the building blocks of well-being. The journal of positive psychology, 13(4), 333-335.
Shapiro, J., McMullin, J., Miotto, G., Nguyen, T., Hurria, A., & Nguyen, M. A. (2021). Medical Students' Creation of Original Poetry, Comics, and Masks to Explore Professional Identity Formation. Journal of Medical Humanities, 42(4), 603-625. https://doi.org/10.1007/s10912-021-09713-2
Shaw, A., & Bailey, J. (2016). Professional identity interactive framework. Anzam Pelt. Teaching Resource.
Skorikov, V. B., & Vondracek, F. W. (2011). Occupational identity. In Handbook of identity theory and research (pp. 693-714). Springer.
Soethout, M., & ten Cate, O. (2014). Career preferences among medical students. Nederlands Tijdschrift Voor Geneeskunde, 158, A6655-A6655.
Tagawa, M. (2019). Development of a scale to evaluate medical professional identity formation. BMC Medical Education, 19(1). https://doi.org/10.1186/s12909-019-1499-9
UMC Utrecht. (June 6, 2022). Alumni-enquête 21-22 [survey].
UMC Utrecht. (September 23, 2021). Exitenquête Geneeskunde [survey].
Van Boeijen, A., Daalhuizen, J., & Zijlstra, J. (2020). Delft design guide: Perspectives, models, approaches, methods. BIS Publishers.
van De Pol, M. H. J., Hacfoort, M., Laan, R. F. J. M., Hoes, A., Hogendoorn, P., Joëls, M., van Leeuwen, H., Polman, C., Romijn, H., Scherpbier, A., & Smit, J. (2020). Raamplan Artsenopleiding 2020. D. Badoux.
Wald, H. S., Anthony, D., Hutchinson, T. A., Liben, S., Smilovitch, M., & Donato, A. A. (2015). Professional Identity Formation in Medical Education for Humanistic, Resilient Physicians. Academic Medicine, 90(6), 753-760. https://doi.org/10.1097/acm.0000000000000725
Warmington, S., Johansen, M.-L., & Wilson, H. (2022). Identity construction in medical student stories about experiences of disgust in early nursing home placements: a dialogical narrative analysis. BMJ Open, 12(2), e051900. https://doi.org/10.1136/bmjopen-2021-051900
Weingarten, K. (2000). Witnessing, wonder, and hope. Family Process, 39(4), 389-402.
Wilkins, E. B. (2020). Facilitating Professional Identity Development in Healthcare Education. New Directions for Teaching and Learning, 2020(162), 57-69. https://doi.org/10.1002/tl.20391
World Health Organization. (2022). World mental health report - Transforming mental health for all. World Health Organization.

Contact Details

Questions? Interested in collaborating?
Ideas to take this project further?
Please feel free to contact me!

d.spek-2@umcutrecht.nl (until June 30)
deanne.spek@hotmail.com

Doctor In Development

Designing education enabling medical students to include their personal identity in the process of becoming a professional

The national and international healthcare systems are in a transition. The healthcare problems of the future ask for doctors who can deal with complex challenges, connect to their patients, support societal health, have skills for lifelong learning, and take care of themselves. Both international researchers and national institutions explain that supporting medical students in their process of Professional Identity Formation (PIF) prepares them for this future. PIF is a process of finding the right balance between the internalization of the values, norms and behaviours of the profession (professional side), and the development of a personal style and purpose (personal side). While the professional side is already part of many medical curricula, attention to the personal side is lacking. Therefore, this project aims to support medical students in exploring their personal side of PIF.

An iterative approach with extensive involvement of students, teachers, medical professionals and educational experts, has led to the creation of the educational module AIO (Arts In Ontwikkeling/Doctor In Development). A pilot study shows that AIO is desired by students, it's implementation in the new UMCU curriculum is feasible, and by addressing requirements for Dutch medical education the course is also viable.
While some improvements are recommended and future research should investigate the long-term effects of the design, the designed education already addresses unmet needs, supports the resilience of residents and allows students to discuss the challenges the future of healthcare brings.

TU Delft

UMC Utrecht