



# 2018 SHE Mid-term evaluation report

Faculty of Health, Medicine and Life Sciences  
Maastricht University Medical Centre (MUMC+)







# 2018 SHE Mid-term evaluation report 2020

## | Preamble

A regular assessment of research units in light of their own aims and strategy is a helpful way to promote the quality and societal relevance of research. The Strategy Evaluation Protocol (SEP) is a tool to facilitate such an assessment. The rhythm of a SEP evaluation consists of a self-evaluation and an external review, including a site visit once every six years. The School of Health Professions Education (SHE) has engaged in a six-year review process of the years 2012-2017. In between six-yearly reviews, a mid-term review can be organized. The mid-term review has both a retrospective and prospective nature and is seen as a light procedure. Although a mid-term review is not mandatory, SHE decided to conduct a mid-term review including a virtual site visit by a review committee on the years 2018-2020. The reasons for organising a mid-term review are the opportunities it offers to engage in a productive conversation about our research impact and future aims, both within our own organization and with a review committee. Moreover, the national protocol and guidelines for a SEP changed and SHE sees the mid-term review as an opportunity to gain experience with the SEP 2021-2027 guidelines ahead of the six-year review in 2024 (spanning 2018-2023).

The main objective of this mid-term review is to evaluate the follow-up of the recommendations of the last review committee. In this mid-term evaluation report, we describe those recommendations and how we used them to develop as a research unit. The focus in this self-assessment report is on changes over the past three years. Next to that, SHE's research quality, societal relevance and viability are described and illustrated in line with the SEP 2021-2027 guidelines. We have provided more detailed information about various aspects of SHE in appendices.

### **Pim Teunissen**

Scientific Director School of Health Professions Education  
May 2021

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# 1. Introduction

Our mid-term review starts with a brief presentation of the School of Health Professions Education (SHE). Its main characteristics, important organisational features and changes over the past years are presented. General information regarding Maastricht University Medical Center (Maastricht UMC+) and the Faculty of Health Medicine and Life Sciences (FHML) at Maastricht University, is presented in Appendix 2a.

## | SHE in context

The School of Health Professions Education (SHE) was founded as a research unit in 2005. In 2014 it gained full recognition when it became one of the six Graduate Schools in the FHML of Maastricht University and in the Maastricht UMC+, which is a close collaboration between the FHML and the Academic Hospital of Maastricht. Although SHE was founded 16 years ago, many of its activities have a much longer history. Its educational Master's programme, the *Master of Health Professions Education* (MHPE), already started in 1992 and is accredited by the Accreditation Organization of the Netherlands and Flanders who hallmarked "internationalization" as its distinctive quality feature. Its research programme has an even longer history that goes back to the founding of Maastricht University in the mid-1970s, but it only started to grow substantially with the establishment of an *International PhD Programme* in the 2000s. In 2012 SHE further developed its range of activities with SHE Collaborates, an activity that offers consultancy and conducts funded projects globally to help higher educational institutions realize educational innovations in the health domain.

SHE is part of the FHML of Maastricht University. FHML is the largest faculty of Maastricht University, accounting for 65% of the university's total staff and budget. It was established in 2007 after a merger of the former faculties of Health Sciences and Medicine. The FHML has a matrix structure, with "departments" on one side and "graduate schools" and the "educational institute" on the other side of the matrix. Consequently, staff working for SHE are employed within a department. SHE collaborates with the departments to ensure that mutual ambitions are clear and staff and resources match those ambitions. SHE originated in the department of Educational Development and Research and that department continues to be the main source of staff in addition to other departments. The FHML and the Academic Hospital of Maastricht work closely together in the Maastricht UMC+ which is a center for integrated healthcare, research, and education that covers the entire spectrum of the health sciences, medicine, and molecular life sciences. The "+" added to the name is an expression of its additional focus on health instead of just medicine, cure, or care. A more elaborate description of the FHML, Maastricht University, and Maastricht UMC+ can be found in Appendix 2a.

Once SHE became one of the official FHML Graduate Schools, it participated in the review cycle for research at Dutch Universities. A Mid-term Review committee (chaired by Prof. Jan Elen and assisted by Prof. Hans Gruber and Prof. Richard Reznick) visited the school in 2015 and assessed its research programme according to the Standard Evaluation Protocol guidelines for the period of 2015-2021. The resulting report can be found in Appendix 2c. As part of the six-year review cycle, in 2018 SHE was reviewed by a peer review committee (chaired by Prof. Detlev Leutner), along with six other research units in Pedagogical Sciences and Educational Sciences in the Netherlands. That review was accompanied by a self-assessment report on the 2012-2017 period. The assessment report of the six-year review is added as Appendix 2d. It is important to note that the Standard Evaluation Protocol 2015-2021 guidelines for research

evaluation at Dutch Universities has been replaced by new guidelines called the Strategy Evaluation Protocol (SEP) 2021-2027. This mid-term evaluation report is part of SHE's current mid-term review over the period 2018-2020, following SEP 2021-2027 guidelines. The main objective of the mid-term review is to evaluate the follow-up of the recommendations of the last six-year review (see chapter 2) and to look towards the future. This chapter contains a brief presentation of the research unit; its main characteristics, important features and changes herein since the last review.

## | Organizational change at SHE

The organizational structure of SHE follows its main activities. The three core activity domains of SHE are called *SHE Research*, *SHE Educates*, and *SHE Collaborates*. These activities are coordinated by the SHE Management Team. Since the six-year review of 2018 a number of planned changes have taken place. An important and anticipated change, which was also discussed during the review in 2018, was the change in leadership.

Up until 2020, leadership of SHE was shared between Prof. Cees van der Vleuten and Prof. Jeroen van Merriënboer. In his capacity of Scientific Director, Prof. Cees van der Vleuten was responsible for the overall management and scientific quality of the work conducted within the school and chaired the SHE management team. Prof. Jeroen van Merriënboer, in his capacity of Research Director, was responsible for the SHE Research and PhD programme. He was Vice-Chair of the management team and represented SHE in the FHML Board of Directors. In September 2020, Prof. Pim Teunissen took over from both of them as SHE Director. He combines the roles and responsibilities that Cees van der Vleuten en Jeroen van Merriënboer previously shared. Some tasks, mainly with regard to the daily operations of the SHE Research and PhD programme have gone to other researchers within the team.

Figure 1. Organizational structure of SHE (organogram)



Figure 2. Organizational dynamics of SHE



The arrival of a new SHE Director has led to changes in SHE's Management Team. Each SHE core activity is represented. Prof. Anique de Bruin represents *SHE Research* and is vice-director of SHE. Dr. Danielle Verstegen represents *SHE Educates* and *SHE Collaborates* is represented by Geraldine Beaujean. Sabina Bulic started in 2019 as SHE's managing director and is also part of the SHE MT. Nicky Verleng is the Management Team's secretary. Prof. Pim Teunissen chairs the Management Team.

Each SHE core activity has its own team of people who are responsible for the execution of the overall vision and strategy and the daily operations. A PhD representative, Lianne Loosveld, is part of the *SHE Research* team. SHE Bytes (a set of activities to develop educational software) activities have been phased out due to a number of reasons, financial viability and a refocus on SHE's core activities being the most important ones. Therefore, SHE Bytes is not represented in the organizational structure anymore. These changes in people and organizational structure are gradual and anticipated. An important aim for the current Director and Management Team is to continue building on the strengths of SHE's various activities while simultaneously increasing the synergy between the core activities.



## 2. Follow-up of the recommendations of the 2018 assessment committee

In 2018, a peer review committee reviewed SHE as part of the six year cycle of reviews conducted under the Standard Evaluation Protocol (SEP 2015-2021). That review covered the 2012-2017 evaluation period of SHE. The assessment report of the six-year review is added as Appendix 2d. This chapter describes the recommendations of the last review committee and the follow-up of these recommendations by the School of Health Professions Education.

### | Research quality: excellent

The 2018 review committee noted that SHE's research quality is excellent, which is illustrated in the following quotes:

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"Although the primary focus is on application-oriented educational research, the research is based on very strong and solid educational theories."

"The research strategy, despite the scientific rigor, is flexible and shows that SHE is willing to adapt to societal and scientific changes. Internationalisation, diversity, and ethical considerations are key issues in the strategy. In research, SHE has been extremely successful as viewed both quantitatively and qualitatively. SHE has a well-deserved international reputation for its work in health professions education and is regarded as one of the top centres in the world in this field."

"Focusing on health professions education, SHE is succeeding in establishing an impressive balance between studies that are educational in nature and studies that are more specifically directly oriented towards health education. This balance is based on the strategic composition of SHE which allows cross-fertilisation in both directions."

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Although these positive evaluations did not lead to specific recommendations, they do make clear that for SHE the challenge is to maintain this high level of research quality. To achieve this, we are strategically balancing building on our strong research foundation with changing and adapting to further increase our research quality and relevance. Two examples of this are the deliberate effort to increase connecting the three SHE core activity domains through research activities and to already start critical reflections and further development of our 2018-2023 research programme called 'Task-centered learning environments in the health professions'.

### | Relevance to society: Excellent

In the area of societal relevance, the 2018 review committee also assessed SHE as excellent. An important aspect here is a focus on not just medical education but on other professions as well, such as nursing, allied health professions, physiotherapy and para-medical professions. SHE continues to invest in this, for instance through collaborations with the Maastricht UMC+, Applied universities such as 'Hogeschool Zuyd' and vocational education such as 'Vista college'.



Moreover, as SHE Collaborates activities continue to expand and cover a variety of projects, SHE is also investing in creating societal impact internationally and in countries where small changes can have major healthcare benefits for society.

## | Viability: very good

The 2018 review committee noted that in terms of our viability, SHE researchers often have 20% research time, compared to other institutes where staffs' time for research typically amounts to 40%. Although the way in which SHE researchers combine research with educational roles in a variety of capacities adds to the relevance and quality of their work, the workload for staff members requires ongoing attention. This remains an important point of attention in the 'matrix structure' of the FHML in which SHE is embedded. Together with the chairs of the departments where SHE researchers are appointed, the SHE management team continues to actively work towards a healthy work environment for all of its staff.

One specific comment from the 2018 review committee regarded succession of the two SHE directors. With the appointment of a new scientific and managing director in 2019/2020, and subsequently a revision of the SHE management structure and management team, SHE has ensured continued viability at the management level for the foreseeable future. The new management team has also started planning for succession of the professorial posts of Cees van der Vleuten and Jeroen van Merriënboer in light of their imminent retirements.

## | PhD training

SHE's PhD programme is world-renowned and attracts many (international) PhD candidates. These students typically conduct their research within their home institution, guided by a local supervisor and remotely by one or two SHE supervisors. The 2018 review committee noted that "international PhD candidates do not feel part of the local PhD community". This reflects a challenge that SHE has taken on. Since 2017, SHE has continued to invest in developing its international PhD network. Our aim is to create a global community of SHE PhD candidates and alumni and we invest in that. For instance, special interest groups (SIGs) of mainly local SHE researchers have started with online 'SIG presents' sessions to involve our global research community. International PhD candidates are also actively involved in SHE activities by means of hybrid meetings of SHE journal clubs and SHE Academy. SHE Academy is the event for PhD candidates globally to come to Maastricht, meet SHE staff, international experts and engage with other PhD candidates. The COVID-19 pandemic has obviously influenced the ability to meet physically, but in April 2021 a multi-day online version of SHE Academy was organized. Recruitment for PhD candidates to coordinate and co-organize SHE activities has expanded to include international PhD candidates. Since 2020, there is a regular PhD newsletter which addresses both local and international candidates. Furthermore, international PhD supervisors are actively invited for SHE events and receive SHE news related to PhD matters. Standard PhD candidates and staff of SHE Research participate in the Interuniversity Center for Educational Sciences (ICO, see [www.ico-education.nl](http://www.ico-education.nl)), which offers educational and networking opportunities. In 2020, we have conducted a PhD Alumni survey of all PhD students who graduated between 2011 and 2020. A total of 56 graduates responded, see appendix 2e for results of this survey. In the open comments our PhD alumni offered very positive comments on a number of aspects of our PhD programme and also provided additional suggestions to further enhance SHE's PhD (alumni) community.

### 3. Vision, mission, values and strategy compared to the previous assessment

Chapter 3 briefly describes changes in the current vision, mission, strategic aims and strategy of SHE, looking back over the past three years.

#### | Vision, Mission, Values

SHE is a graduate school for research, education, and innovation in health professions education (HPE) (see <https://she.mumc.maastrichtuniversity.nl>). Since its inception, the vision and mission of SHE has been clear and consistently focused on a global impact on healthcare through investment in research of healthcare education and the translation of research insights to education and innovation in HPE. Research quality, societal relevance and a continuing focus on viability are the focus of SHE's Management Team. In 2020, the renewed SHE Management Team emphasized SHE's ambitions by capturing our *vision* in the following two sentences:

**Excellent healthcare requires evidence-informed models for the education of future and current healthcare professionals. Through research, education, and innovation, SHE works towards a world in which all healthcare professionals are well educated and in the best position to contribute to high quality care.**

The *mission* of SHE has been redefined as follows:

**SHE aims to be a leading hub for research and innovation of HPE worldwide. SHE connects HPE research to educational activities, consultancy, innovation and impactful global projects.**

This redefined mission is the result of conversations within the SHE Management Team and have been shared and discussed at a SHE staff meeting in January 2021. The content of this mission is similar to the mission described in the self-assessment report 2012-2017. However, the updated mission emphasizes that SHE is the hub in a broad and global network of healthcare practitioners, researchers, educationalists and policy developers who share a passion of the development of HPE. Moreover, the second sentence helps to focus on the synergistic value of connecting theory, research and practice to move the field of HPE forward.

The *values* that characterize SHE have now been explicitly stated, they are 'open, inquisitive, socially responsible, collaborative, innovative and ambitious'. These values are important for our discussion below of our academic culture, approach to talent development and PhD training and open science.



## | Strategy; changes and development

The vision and mission of SHE, combined with these values, inform our strategy and strategic choices. An important objective is to make sure our research informs our educational practice and vice-versa. As an example, in 2018 SHE decided to revise the Master of Health Professions Education and to align its instructional design with the state of science in HPE. This effort has been led by Dr. Daniëlle Versteegen. The result is a much more flexible programme based on individualized guidance and feedback that has started with the first cohort of students in May 2021. To further increase synergy between SHE core activities, the SHE Management Team has recently started a process in which all SHE staff will be involved, that focuses on further developing a shared identity, shared goals and providing guiding principles based on SHE's vision, mission and strategy. This process is the basis for recognizing opportunities in line with our vision and mission, strengthening collaborations within and outside the School connecting SHE activities to FHML, Maastricht University and Maastricht UMC+ educational programmes. Next to that, the SHE Management Team expects that this process will enable SHE to continue to play a leading role globally in developing the field of HPE. These changes clearly focus on keeping up the high standard of research quality and ensuring impact and societal relevance by integrally connecting practice and research through SHE. In terms of SHE's viability, the abovementioned actions initiated in 2018-2020 that will continue in the upcoming years, are connected to a deliberate investment in our academic culture and our people ('human resources' in the words of the SEP 2021-2027).

Strategic choices that remain a strong foundation for SHE are the *double-chain approach*. The first chain concerns the connection between research and impact. Starting with application-oriented educational research is essential for finding new and better ways to educate health professionals. The findings of this research consequently feed into the educational activities of SHE. The chain is completed when the research findings and related educational activities impact the quality and innovation in educational institutes and healthcare organizations, opening up new opportunities for research. The second chain focuses on impact on individuals and teams. This starts with short courses for participants who want to become familiar with health professions education. Next in the chain are certificate courses for participants who want to learn more about particular topics in health professions education, followed by the MHPE programme for participants who want to become academic educators, leaders or researchers of health professionals. Ending the chain is a PhD programme for participants who want to further develop as scholars in health professions education. It is not uncommon for students to first take a short course and end up doing research in the PhD programme.

Figure 3. Double-chain approach of SHE.





Another important strategic instrument is SHE's research programme. The focus in our 2018-2023 programme of research, called 'Task-centered learning environments in the health professions' (see appendix 2g) is on problems that have both theoretical and practical relevance. In terms of research methods, the programme uses all methods that may help to answer relevant research questions, ranging from descriptive-qualitative studies and experimental-quantitative studies, through narrative reviews and statistical meta-analyses, to short intervention studies and longitudinal design-based research projects. SHE's research programme spans four interrelated themes:

1. *Goals, values, and approaches to evaluation.* Health professions education aims to train healthcare professionals to contribute to excellent care within the dynamic context of healthcare. This requires an understanding of which competences can best be trained, how education can contribute to improving the quality of care, and how health professions education can best be evaluated.
2. *Approaches to instruction.* In education, there are no instructional approaches that always work: particular methods support particular goals under particular conditions. Healthcare education in particular covers a great diversity of contexts, from classroom settings within medical schools through public health information sessions provided in the community, to tertiary care hospitals and solo practices in remote areas.
3. *Approaches to assessment.* Research findings consistently indicate that assessment design and assessment practices always and inevitably need compromising and that any single assessment is bound to be flawed. High-quality assessment therefore involves a combination of carefully selected assessment methods in a programme of assessment that is fit for purpose and optimally aligned with intended learning outcomes and approaches to instruction.
4. *Approaches to Implementation.* The effects of approaches to evaluation, instruction, and assessment are always mediated by perceptions and expectations of students, teachers, and other stakeholders. Furthermore, each local context will differ to some extent from the context in which the approach was developed and/or in which prior research was conducted, which poses many challenges to successful implementation.

The research programme was designed to cover a period of 6 years, from 2018-2023. This research program is serving SHE well in terms of organizing and focusing on main research lines. To keep our research programme up-to-date and in line with current and anticipated developments in our field, SHE aims to start the collaborative process of jointly developing our research foci for the next 5-10 years by the end of 2021 or early 2022. Starting well before 2023 with engaging various stakeholders in the ongoing development of our research programme will contribute to the quality of the next iteration of our research programme. The SHE Research team has taken the lead in this process and will organize 4 meetings in the second half of 2021 to reflect on our current research aims from various perspectives and to work towards a research programme that indicates the breadth of SHE's research capabilities as well as making strategic choices for specific research areas SHE will focus on. The 4 groups that will kick off this process are representatives from SHE's 'special interest groups', SHE's (associate) professors, SHE's PhD's and the SHE Management Team. This process will instill a culture of deliberately reflecting on why we do research, how and where we achieve impact through our research, and enable SHE staff to make decisions in line with our shared ambitions and goals. In effect, this process will benefit our research quality, societal relevance and viability through investing in our academic culture in line with our values and will likely positively impact our PhD training programme, diversity and attractiveness to and retention of talent.

## 4. PhD programme

The PhD programme is a central component of the activities of the School of Health Professions Education. This chapter describes the main characteristics of our PhD programme and our approach to ensure its continued success. Dr. Janneke Frambach is the PhD Coordinator of SHE. Information on Maastricht UMC+/FHML policies with regard to PhD policy and training are presented in Appendix 2b.

Our PhD candidates learn to independently conduct high-quality educational research in the health professions. They write a PhD thesis containing a coherent body of scholarly work of at least four separate studies. These studies are described in the form of journal articles aimed to be published in peer-reviewed journals. The thesis also includes a general introduction and discussion and, since 2020, an impact chapter. By the end of 2020, about 95 PhD candidates were enrolled in SHE's PhD programme. The programme has two branches. First, it encompasses a *regular PhD programme* which contains PhD projects that are paid by external funding organizations or, to a much lesser extent, by SHE itself. PhDs in the regular PhD programme typically work on their research for four years and are housed by the School. The second branch we offer is an *international PhD programme*, which contains PhD projects that are typically submitted by participants from the PhD Research Proposal Writing Course. After formal approval of their PhD proposal, candidates are admitted to the international PhD programme and pay an annual fee for making use of Maastricht University's facilities, coursework and supervision. They typically combine their PhD with a job as a health professional but they are also expected to be able to finish their PhD research within a period of four to five years. They are not housed by SHE and typically collect research data in their own institution.

Selection for and admission to the regular PhD programme takes place according to the normal procedures for hiring employees: Vacancies are advertised on Academic Transfer and other relevant websites, candidates are selected on the basis of their CV and motivation letter, and the final selection is based on job interviews. Selection for the international PhD programme is mainly organized through the PhD Research Proposal Writing Course, which starts twice a year in October and in March and runs through to March (of the next year) or October, respectively. Admission to the course depends on possession of a Master of Science degree, the quality of the Master's thesis and/or possible prior publications in peer-reviewed journals on health professions education (about 1/3 of all applicants is not admitted to the course). Students who have taken the "research track" of our own MHPE programme and who achieved excellent study results are encouraged to continue in the PhD programme; the two most talented MHPE graduates can apply for free participation in the course. Aspiring PhD candidates do have the opportunity to submit a research proposal directly to our PhD programme. The proposal will be reviewed by SHE staff in a procedure that is similar to the review process of PhD proposals submitted after finishing the Writing Course. PhD proposals are submitted online on "e-press" (an online submission and review system) where it is sent out for review to two SHE faculty members. Reviewers advise the PhD Coordinator of SHE to reject, accept, or ask for a revision of the research proposal. About 90% of the proposals prepared in the course were formally accepted, usually after a last round of revisions. The acceptance rate of proposals submitted to the PhD programme that weren't developed in the Writing Course is much lower (<20%). When a PhD research proposal is rejected, candidates are not allowed to resubmit for one year.

In both the regular and the international PhD programme, each accepted PhD candidate is supervised by a first supervisor (who must be a full or associate professor, called *promotor* in Dutch) and one or two co-supervisors. One member of the team will act as the "daily supervisor." The co-supervisors must have a PhD degree themselves and are appointed based

on their expertise in the topic and their experience in supervising PhD candidates. In the case of international PhD candidates, the second co-supervisor who is not the daily supervisor is often affiliated with the home institution of the candidate (i.e., s/he is a “local” co-supervisor). PhD candidates meet at least once a week with their daily supervisor and once a month with their promotor. For international PhD candidates, these meetings take place online. SHE considers scientific integrity as a core value of responsible research conduct. All PhD candidates sign the Netherlands Code of Conduct for Research Integrity upon the start of their project. In addition, PhD candidates and supervisors are encouraged to consult the FHML webpage of scientific integrity ([www.maastrichtuniversity.nl/about-um/faculties/health-medicine-and-life-sciences/research/research-office/scientific-integrity](http://www.maastrichtuniversity.nl/about-um/faculties/health-medicine-and-life-sciences/research/research-office/scientific-integrity)), where they can find the MUMC+ Research Code, which was developed in line with the Netherlands Code of Conduct for Research Integrity and the Maastricht University Integrity Code of Conduct. Further information on expectations with regard to scientific integrity, open science and a number of practical topics are described in our PhD Guide, see appendix 2f.

As part of SHE’s strategy to keep PhD alumni connected to SHE and the PhD programme in particular, a number of recently graduated PhD candidates have started to take on the role of co-supervisor for a new PhD student. That way, the PhD alumnus benefits from continuation of their research activities and the opportunity to develop their PhD supervision skills while working in a team with a first supervisor of SHE. PhD candidates get the benefit of being supervised by a near-peer who understands through first-hand experience what it takes to complete a PhD by publication at SHE. Moreover, PhD alumni are also starting to participate as course faculty in the PhD Research Proposal Writing Course as well.

The online monitoring system ‘PhD TRACK’ plays a central role in monitoring the trajectory and assuring progress of the PhD candidates. All PhD candidates register in PhD TRACK at the start of their PhD and describe in their Training and Supervision Plan what educational goals they wish to pursue and what courses should be taken. Every 6 months, PhD supervisors and candidates evaluate progress and determine a course of action if needed. Since constructive collaboration is known to be central to the success of a PhD project, at the start of the PhD trajectory PhD candidates and their supervisors discuss how they will collaborate and communicate using the “PhD Team Tool,” developed by the PhD coordinator and PhD representatives. The PhD Team Tool collects PhD team members’ wishes on collaboration and communication, which are then shared in a joint meeting. Moreover, SHE PhD supervisors meet twice a year in “peer coaching meetings” where they discuss progress of their PhD candidates and topics such as providing feedback on writing and cross-cultural collaboration. A confidential counselor (Dr. Herma Roebertsen) is available to advise PhD candidates on issues they prefer not to discuss with their supervisory team.

Regular PhD candidates and staff of SHE Research participate in the Interuniversity Center for Educational Sciences (ICO, see [www.ico-education.nl](http://www.ico-education.nl)) and in the Netherlands Association for Medical Education (NVMO, see [www.nvmo.nl](http://www.nvmo.nl)). Regular PhD candidates typically take courses at Maastricht University, ICO, and NVMO. All regular PhD candidates are expected to fulfill the ICO requirements and earn an ICO certificate. International PhD candidates search for courses in their local environment, follow online courses, or come to Maastricht University. For international PhD candidates, there are no formal requirements regarding the number of courses they should take or ECTS credits they should earn. Their course programme is discussed within the supervisory team and tailored to their individual needs. Their individualized training plan is uploaded to PhD TRACK as part of their Training and Supervision Plan. PhD candidates are also supported by methodological and statistical experts (for quantitative research: Dr. Jeroen Donkers, Dr. Carlos Collares, Dr. Shahab Jolani; for qualitative research: Dr. Janneke Frambach, Dr. Renée Stalmeijer) and an English language editor (Angelique van den Heuvel, MA).



Tables 3 and 4 in Appendix 1c show the duration and success rate of PhD candidates at SHE. Table 3 covers all the FHML categories of 'standard PhD-candidates', who are PhD candidates with FHML employee status that conduct research with the primary aim to obtain a PhD degree. The majority of SHE's regular PhD candidates fall within this category. FHML or Maastricht UMC+ employees whose primary role is in education or healthcare and who are also working on a PhD do not fall within this category. Neither do international scholarship students, such as the China Scholarship Council (CSC) PhD candidates. Table 4 provides information on all SHE PhD candidates. Appendix 2e shows the results of a survey among all SHE PhD graduates who graduated between 2011 and 2020. In total, 105 graduates were invited by email and 56 graduates responded. Overall, the results indicate the high satisfaction of PhD candidates with SHE's PhD programme and the positive impact it has on their personal and professional careers.



## 5. Academic culture, inclusivity and human resources policy

Research is a collective endeavour. It is the diversity of perspectives, contradictions in research findings and continued curiosity towards ill-understood phenomena that drives the success of the School of Health Professions Education. This requires an open, safe and inclusive research environment. SHE continuously works on creating a healthy academic culture and developing human resource policy that supports that, of course within the general policies of Maastricht UMC+ and FHML. Information on Maastricht UMC+/FHML policies with regard to open science, academic culture, and human resources policy are presented in Appendix 2b.

Openness, safety and inclusivity have been hallmarks of SHE activities. They enable our core activities. All three core activity domains of SHE (*SHE Research*, *SHE Educates*, and *SHE Collaborates*) deliberately engage with a wide variety of participants and stakeholders around the world. The diversity of PhD candidates (see Figure 5), MHPE students, short course participants and participants within SHE Collaborates activities, illustrate our ability and attractiveness in this regard. The management and leadership of SHE clearly recognize that for all SHE staff openness, safety and inclusivity are vital and require constant attention. Especially now, with the COVID-19 pandemic forcing people to work online, feeling connected, valued and part of a community is vital. SHE, together with the department of Educational Development and Research of FHML, has organized a number of online activities for SHE staff. Moreover, the new Management Team of SHE has explicitly discussed that each team member stays in touch with SHE staff related to the core activity that they represent and have acted accordingly. In a recent (February 2021) SHE staff meeting (online, in English) connectedness, openness, safety and inclusivity were emphasized by the SHE scientific director, Pim Teunissen. In terms of policy, the focus on synergy between SHE's core activity domains further supports the message that to succeed we need to include a variety of perspectives and activities.

The diversity in terms of gender, throughout all layers of the organization of SHE, can be seen in table 1 in appendix 1c. The share of women in the total number of staff ranges from 55-61% in the 2018-2020 period. Diversity in terms of country of origin is represented in the two figures below. Figure 4 shows the country of origin for all SHE staff and standard PhD candidates (n=112) and figure 5 the country of origin of all other PhD candidates (n=84). Results from the survey among PhD alumni (see appendix 2e) also shows the diversity in background of PhD candidates, with candidates working clinically, in administrative roles, teaching, educational research and educational management.





Figure 4. Country of origin for all SHE staff and standard PhD candidates (n=112)

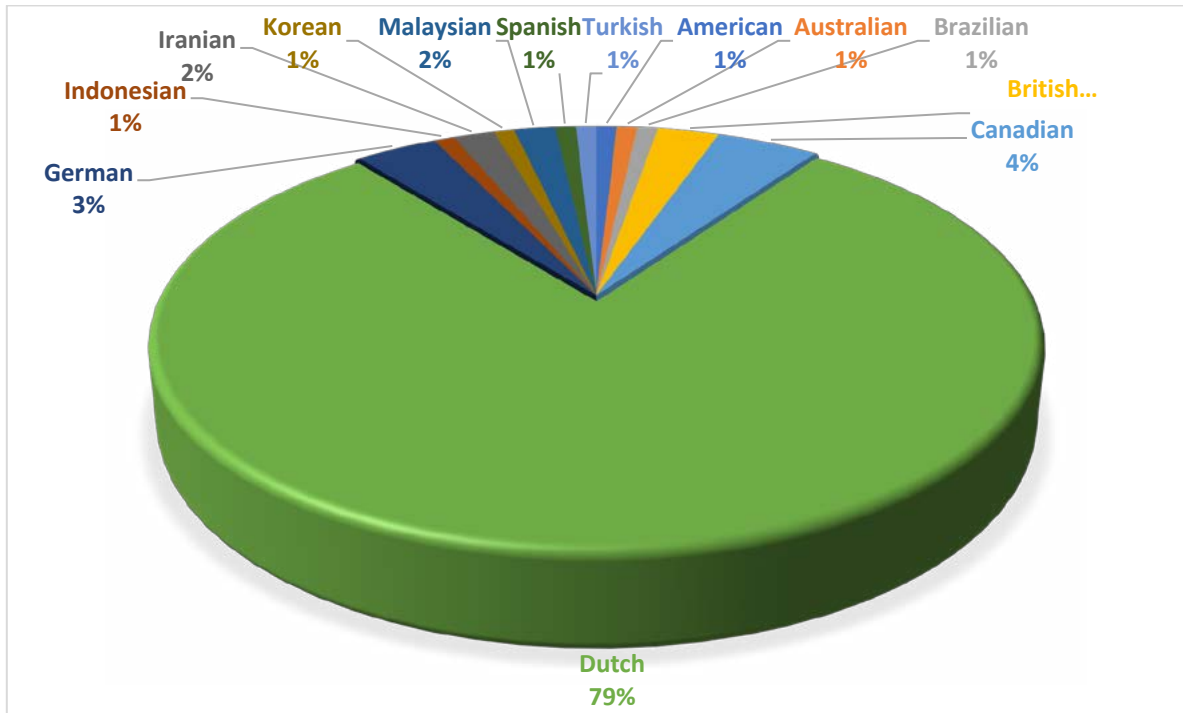
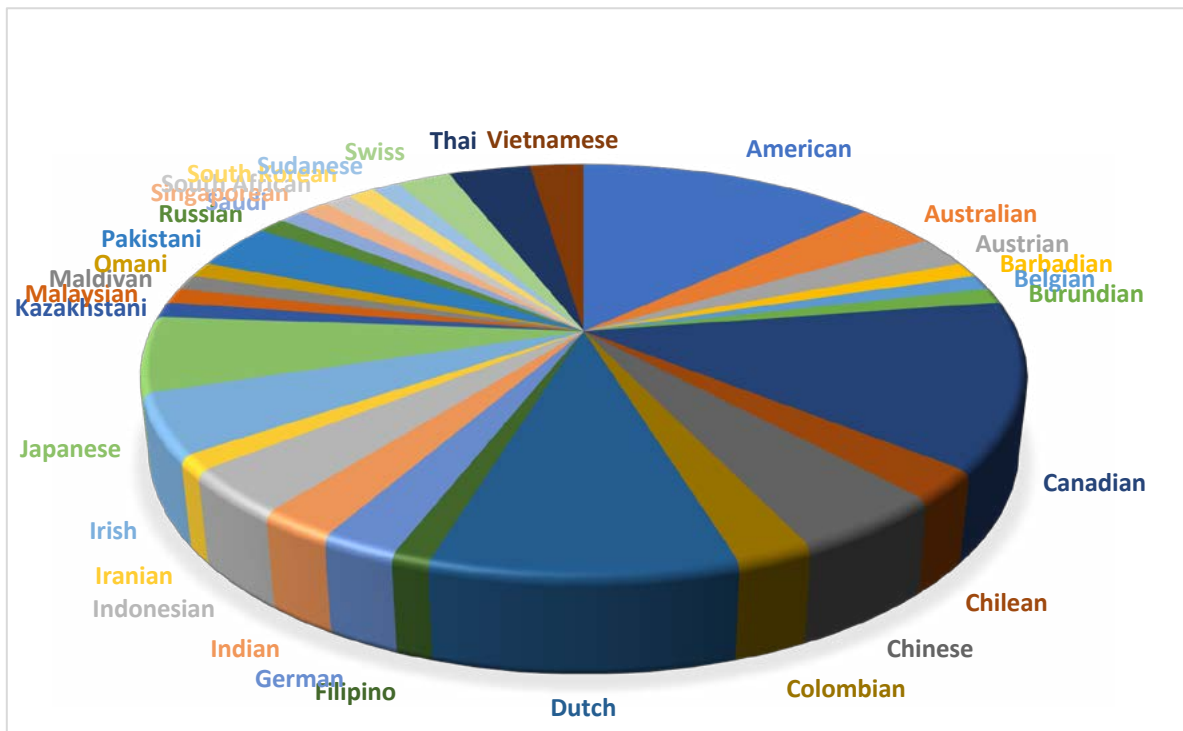


Figure 5. Country of origin of all other PhD candidates (n=84)



Another way to support an inclusive, open and safe academic culture is through talent policy and human resources policy in general. Naturally, SHE is excited about steps with regard to Recognition and Rewards taken at a national level and at the level of Maastricht University,



FHML and Maastricht UMC+. Future policies will likely enable a more diversified and holistic approach to evaluation and appraisal of staff. Next to the importance of research output, activities in the domains of leadership, impact and education will play a much more important role in formal yearly assessments and promotion decisions. This direction fits very well with the diverse activities of SHE and the different directions of development of SHE staff. Research integrity is an important part of our academic culture. In this chapter 6 and [case study 9](#), we explain and illustrate the attention research integrity receives at SHE.

Specifically with regard to talent policy, SHE has and will continue to support talented researchers and staff who show great potential. All SHE staff, including regular PhD students, have annual performance appraisals, and PhD candidates in the international PhD programme have progress meetings with their supervisors two times a year (initiated by an email from PhD TRACK). Those meetings are particularly intended to explore career opportunities, agree on performance goals, and to identify candidates who may qualify for personal research grants. Such grants include the Kootstra Talent Fellowship, which is awarded by the FHML to excellent students to bridge the gap between a PhD and postdoc position (in 2020 Carolin Sehlbach, a recent PhD graduate from the SHE programme and current assistant professor, has applied to the Kootstra Talent Fellowship with full support of SHE, but unfortunately wasn't successful. In 2021 we expect that two more Kootstra Talent Fellowships will be applied for through SHE). The outcomes of the survey among PhD alumni (see appendix 2e) who graduated between 2011 and 2020 shows more recent graduates (2016-2020 cohorts) also perceive that there is explicit attention given to career development (scored a 3.4 on a 5-point Likert scale), although there is room for improvement. Ways in which SHE is further increasing its focus on professional development, is by giving talented PhD candidates who are in the final years of their PhD project the opportunity to participate in courses that help them prepare a research proposal for external funding. They can receive intensive guidance from senior researchers and the Grants Office of the FHML while writing these proposals, and are stimulated to spend some time abroad in excellent research groups. Courses aimed at the preparation of research grants are offered by Maastricht University (e.g., "Training grants for individuals"), but SHE also organizes workshops and regular meetings in which young researchers who have been successful in obtaining grants share their experiences, such as SHE Grants meetings. The inclusion of PhD alumni in SHE Educates activities (e.g. PhD Writing Course and MHPE) is another way of supporting talent and individuals' professional development.

SHE leadership has initiated a number of changes and is investing in SHE's future with a focus on high quality research, impact and synergy between SHE core activities. In the concrete ways in which SHE is working on these goals, such as in SHE staff meetings and in SHE's 'special interest groups', during the (online) SHE Academy and when starting with the further development of the research agenda, SHE's leadership is explicit that we are an organization that prides itself on its inclusivity and high academic standards. Hence, *values* that characterize SHE; 'open, inquisitive, socially responsible, collaborative, innovative and ambitious'. Through the behaviour of all SHE staff and supported by policy, we continue to invest in this.

## 6. SHE's accomplishments and impact during the last 3 years

This chapter provides a narrative description of SHE's accomplishments and results over the past 3 years, from 2018-2020. The highlights that we describe below are not meant to be comprehensive, but to provide insight in the breadth and depth of our activities and impact as a research school in the field of health professions education. This narrative is supported by factual evidence presented here and in the appendices and case studies.

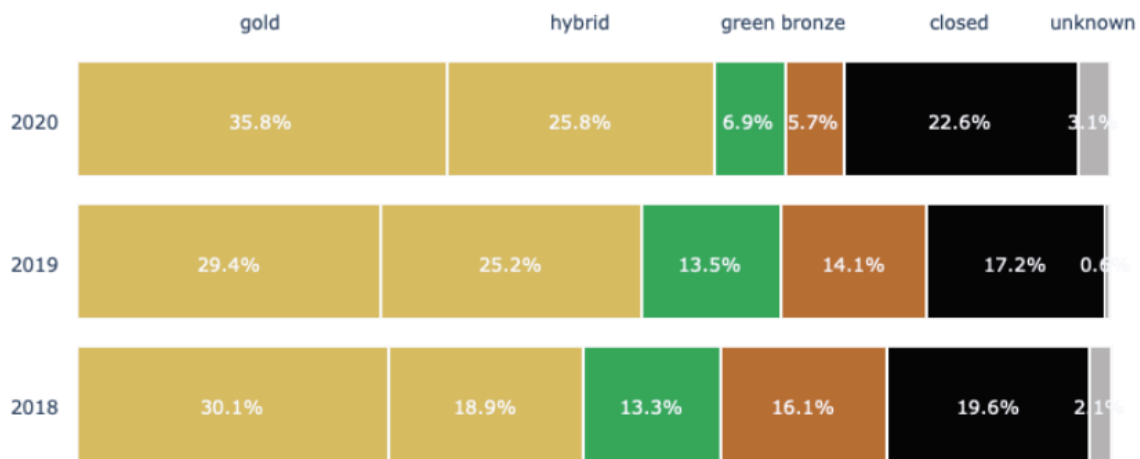
### | Research quality

For SHE and within the framework of this mid-term review report, peers are (inter)national colleagues in the field of health professions education and also higher education in general. SHE achieves its societal impact through its engagement with and influence on students in health professions, the professionals themselves, and those involved in education (e.g., teachers, programme directors, student advisors). The impact on peers and our societal stakeholders enables our impact on patient care, patients and thereby society at large. In section 6.1 we illustrate the excellent research quality of SHE by referring to a number of overall markers of excellence and highlighting our developments in open science and research integrity (part of our academic culture). This is followed by a brief description of our research accomplishments within the areas of innovative assessment and learning environments. Section 6.2 focuses on our relevance to society.

The quality of the research done within SHE was rated as excellent by the review committee in 2018, and since then SHE has strived to maintain its excellence by focusing its research products, among others, on high quality peer-reviewed publications (89.1% of research output in 2018-2020), special issues published in scientific journals, invited (keynote) presentations and lectures, and organized conferences. The large majority of the peer-reviewed articles are published in JCR journals. SHE researchers publish not only in health professions education journals, but also in general education and educational psychology journals, and to some extent, in clinical journals that have interest in educational issues. Open science and research integrity is of great priority to SHE. This is shown by an increase in open access article publications from 14% in 2010 to 74,2.% in 2020 (see figure 6). Data on trends in open access publications in different scientific fields over the past years<sup>1</sup> shows that SHE is a front runner in terms of publishing open access. Moreover, Prof. Erik Driessen is editor-in-chief of the Open Access journal *Perspectives on Medical Education* since 2012. Under his editorship, the journal became one of the top 5 journals in medical education that received attention in social media<sup>2</sup> and was added to the Journal Citation Reports list. Prof. Erik Driessen's research on scientific integrity (see [case study 9](#)), Dr. Karen Könings' membership of both the Dutch Society for Medical Education (NVMO) and her role as chairperson of the Maastricht UMC+ Platform Scientific Integrity, and attention to ethical issues in the biannual SHE Academy further exemplify SHE's strive towards enculturating high research integrity.

<sup>1</sup> Trends for open access to publications, data from the European Commission. See [https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor/trends-open-access-publications\\_en](https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor/trends-open-access-publications_en)

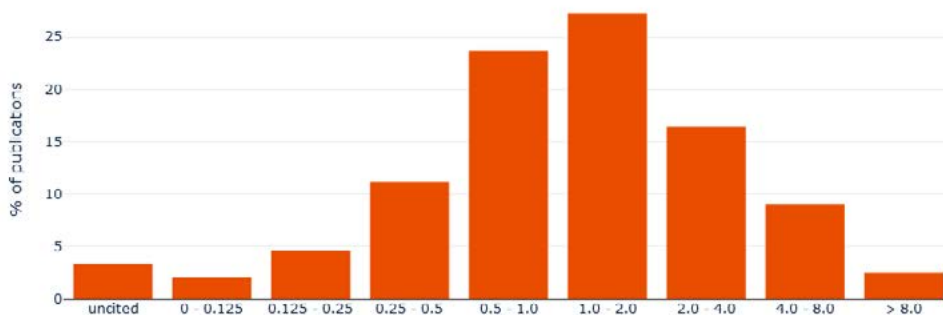
<sup>2</sup> Maggio, L. A., Meyer, H. S., & Artino, A. R. (2017). Beyond Citation Rates. *Academic Medicine*, 92, 1449–1455.



**Figure 6: Open access status of peer-reviewed publications of SHE 2018-2020.** The open access status of SHE publications, as defined by Unpaywall. A total of 114 publications is shown for 2020, 163 for 2019 and 143 for 2018.

SHE researchers strive to contribute to theory construction and theory advancement by engaging in empirical research (through novel data collection and review or meta-analytic research), or by writing conceptual articles that have strong potential to impact education and, ultimately, patient care. The width of themes under study, covering more fundamental theory-building research (e.g., on cognitive load) to application-oriented research (e.g., on problem-based learning) across all levels of health professions education, is exemplified in [case studies 1, 2, 3 and 4](#).

An important indicator of use of research products by peers is the citation impact of SHE's scholarly work. Here, we use the category normalized citation impact (CNCI), since it corrects for differences in citation frequencies that are attributable to age, document type, and subject area. Data are most reliable 24 months after publication, so publications from 2019 and 2020 were excluded from the analyses. A CNCI of 1.0 indicates that publications receive citations comparable to the world average, while a CNCI higher than 1.0 shows that publications are cited more than the world average. A total of 959 outputs were included in these analyses. In figure 7, it is visible that 55% of SHE's output receives more citations than is expected based on the age, document type, and subject area. Moreover, 2.4% of the total output (24 documents) has a CNCI higher than 8. Only 3.4% of SHE's output is uncited (compared to 28.37% of the field of Social Sciences in 2010-2018). The three items with the highest CNCI are *Cognitive load theory in health professional education: design principles and strategies* (2010), *Do Learners Really Know Best? Urban Legends in Education* (2013) and *Entrustment Decision Making in Clinical Training* (2016).

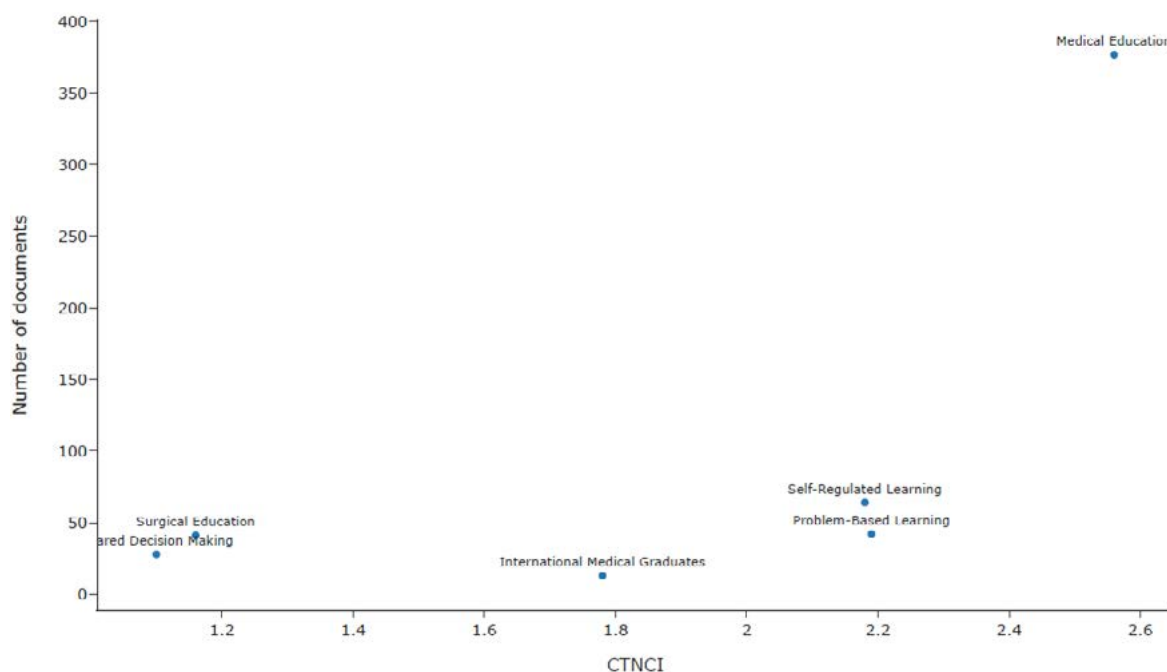


**Figure 7: Histogram CNCI SHE 2010-2018.** The percentage of total output is plotted against the CNCI bins. 24 publications (2.5%) perform more than 8 times better than the expected citation average for publications of the same age, document type and subject area. 55% of the total output has a CNCI of > 1. Note that given the skewed distribution the mean is not a reliable indicator and is therefore not interpreted.



Importantly, 22.6% (242 documents) of SHE's output ends up in the top 10% of comparable outputs worldwide regarding age, document type and output area, and 4.2% in the top 1%. This indicates that SHE's scholarly work ends up at least two times more than expected in the top 10% and four times more in the top 1% cited output.

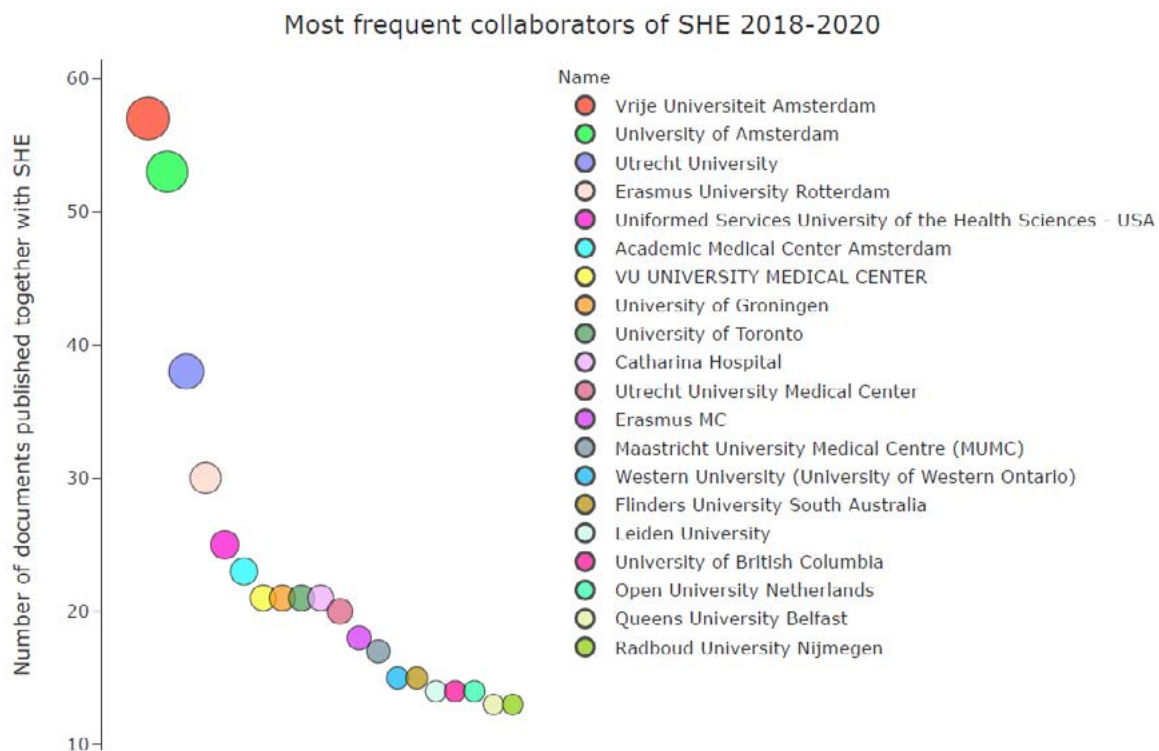
Recently, the Centre of Science and Technology Studies (CWTS) has developed a citation-based classification algorithm that clusters publications based on cited references. These clusters are provided topic names based on 'closeness' of documents using the citation relationships. In figure 8 one can see that SHE publishes most often on the topic "Medical Education" (377 documents, 40%) and that those publications are cited 2.6 times more often than expected. The topics "Self-regulated learning" and "Problem-based Learning" are the next most frequent ones (64 and 42 documents, respectively), both with a CNCI of 2.2.



**Figure 8: Number of documents and CTNCI per citation topic.** The number of publications is plotted against the Citation Topic Normalized Citation Impact. Only those citation topics on which SHE has published more than 10 documents (articles and reviews included) in the period of 2010-2018 are plotted.

The map on the next page shows the strong international connections of SHE (Figure 9). The United States and Canada collaborate most frequently with SHE, in terms of documents published together in the period of 2018-2020. Looking at the most frequent collaborative partners for SHE in this period, the VU Amsterdam is on top with 57 documents followed by the University of Amsterdam with 53 documents (Figure 9). SHE frequently collaborated with researchers from both universities in Amsterdam and with researchers affiliated with their respective hospitals. The hospitals have merged in 2018 and are now jointly called the Amsterdam University Medical Centers. Utrecht University (38) is the next most frequent collaborator. Locally, SHE collaborates with a large number of partners as well. For instance, at Maastricht University's 'Edlab', the institute for education innovation and promotion at all Maastricht University's faculties, SHE staff has been the driving force behind a study on the current state of education at Maastricht University called the EDview project (see <https://edlab.nl/edview/>). Another example is SHE's partnering with FHML's Skillslab and Maastricht UMC+'s Simulation Centre in 'TRI-SIM' to join forces and become an international leading research and development institute for simulation based education in healthcare and continuous professional development for simulation instructors. In collaboration with Maastricht UMC+'s Academy, SHE has invested in a collaboration with the traumatology department on interprofessional collaboration. SHE Research, SHE Educates and SHE

Collaborates all have close ties to various clinical departments at Maastricht UMC+. Also, SHE works in close collaboration with other FHML Research Schools. For instance, SHE and the Care and Public Health Research Institute (CAPHRI) currently share 8 PhD students.



**Figure 9: Number of documents for SHE's most frequent collaborators (2018-2020).** The number of documents (articles and reviews) published in collaboration plotted for the top 20 collaborators for SHE. Note that the accuracy of this data depends on how researchers report their affiliations in publications.

Having provided a general summary of the scientific impact of SHE's scholarly work, we now turn to specific achievements (research products for peers and use of these products by peers) related to SHE's main research themes.

*Innovative assessment* - Within the research theme 'Approaches to assessment', SHE is the birthplace of theorization on programmatic assessment (see [case study 2](#)). In short, programmatic assessment theory describes how a shift from assessment *of* learning to assessment *for* learning is paramount in education and can be accomplished by viewing learning and assessment tasks as providing information on both learning and competence levels, but also as ways to improve learning and competences. Recent seminal articles within SHE on programmatic assessment include *Managing tensions in assessment: moving beyond either-or thinking*<sup>3</sup> and *Understanding the influence of teacher-learner relationships on learners' assessment perception*<sup>4</sup>. Programmatic assessment is gaining attention globally and researchers within SHE are invited across the world to discuss programmatic assessment theory and applications. For instance, Prof. Cees van der Vleuten gave a keynote lecture with the title 'A journey towards programmatic assessment' at the Université de Genève, Switzerland, in January 2020. And Prof. Sylvia Heeneman presented a keynote on

<sup>3</sup> Govaerts, M. J. B., van der Vleuten, C. P. M., & Holmboe, E. S. (2019). Managing tensions in assessment: moving beyond either-or thinking. *Medical Education*, 53(1), 64-75. <https://doi.org/10.1111/medu.13656>

<sup>4</sup> Schut, S., van Tartwijk, J., Driessen, E., van der Vleuten, C., & Heeneman, S. (2020). Understanding the influence of teacher-learner relationships on learners' assessment perception. *Advances in Health Sciences Education*, 25(2), 441-456. <https://doi.org/10.1007/s10459-019-09935-z>

'Programmatic assessment – Principles and Implementations worldwide' at Ribeirão Preto International Conference on Assessment in Health Professions Education, Brasil, in November 2020. The impact of SHE's programmatic assessment research is also measured by implementations, for example in Universities of Applied Sciences in the Netherlands, and training programmes in the United States, Canada, Australia and New Zealand. Moreover, this has led to several marks of recognition from peers, for example, Prof. Cees van der Vleuten becoming Presidential Chair (2018-2019) at the School of Medicine, University of California, San Francisco.

SHE is also an international hub for research on innovation and implementation of cross institutional progress testing (see [case study 3](#)). In this form of testing, students are tested regularly on all subdomains of their educational programme. It provides insight into development of students' knowledge and serves as feedback about subdomains that are underdeveloped. In recent years, the progress test has moved online and as such is adaptive to students' test responses emanating in an even more reliable measure of students' knowledge. Recent marks of recognition in this domain is the awardance of an Erasmus Plus grant to Van der Vleuten et al. (2018, Development and evaluation of online adaptive progress testing for medical students across 8 European institutions. €332,720.00). The adaptive international progress test is currently being applied to several universities worldwide, including the University of Helsinki, the University of Algarve, and Freiburg University.

*Innovative learning environments* - A further scientific landmark at SHE, specifically within the research theme 'Approaches to instruction' is research on optimizing design of education, including but not limited to the four component instructional design model (4C/ID; see [case study 1](#)). Central to optimizing design of education is SHE's research on gaining a better understanding of why an approach works, in which contexts, and for which type of learners. SHE's seminal research of note in this area is both domain-specific (e.g., workplace learning<sup>5</sup>, simulation training<sup>6</sup>), and directed at generic competencies (e.g., communication skills<sup>7</sup>, self-regulated learning skills<sup>8</sup>). In June 2019, SHE organized the 12<sup>th</sup> International Cognitive Load Conference in Maastricht, chaired by Prof. Van Merriënboer. Of specific mention is that a recent worldwide bibliometric analysis of workplace learning research revealed that Maastricht University is number 4 in the world in terms of number of publications, with specific focus on integration with problem-based learning<sup>9</sup> and with Prof. Teunissen ranked fourth worldwide in terms of most cited publications (i.e., publications with at least 45 citations).<sup>10</sup> Similar to programmatic assessment research, SHE's research on design of

<sup>5</sup> Klasen, J. M., Driessen, E., Teunissen, P. W., & Lingard, L. A. (2020). 'Whatever you cut, I can fix it': clinical supervisors' interview accounts of allowing trainee failure while guarding patient safety. *BMJ Quality & Safety*, 29(9), 727-734. <https://doi.org/10.1136/bmjqs-2019-009808>

<sup>6</sup> Lee, J. Y., Donkers, J., Jarodzka, H., Sellenraad, G., & van Merriënboer, J. J. G. (2020). Different effects of pausing on cognitive load in a medical simulation game. *Computers in Human Behavior*, 110, [106385]. <https://doi.org/10.1016/j.chb.2020.106385>

<sup>7</sup> Wilby, K. J., Dolmans, D. H. J. M., Austin, Z., & Govaerts, M. J. B. (2019). Assessors' interpretations of narrative data on communication skills in a summative OSCE. *Medical Education*, 53(10), 1003-1012. <https://doi.org/10.1111/medu.13924>

<sup>8</sup> Rovers, S. F. E., Clarebout, G., Savelberg, H. H. C. M., de Bruin, A. B. H., & van Merriënboer, J. J. G. (2019). Granularity matters: comparing different ways of measuring self-regulated learning. *Metacognition and Learning*, 14(1), 1-19. <https://doi.org/10.1007/s11409-019-09188-6>

<sup>9</sup> Dolmans, D.H.J.M., & Schmidt, H.G. (2010). The problem-based learning process. In H. van Berkel, A. Scherpbier, H. Hillen, & C. Van der Vleuten, Eds., *Lessons from Problem-based Learning*, (pp. 13-20). Oxford, UK: Oxford University Press. DOI:10.1093/acprof:oso/9780199583447.003.000

<sup>10</sup> Bezerra, J., Mota, F. B., Comarú, M. W., Braga, L. A. M., Rocha, L. F. M., Carvalho, P. R., ... & Lopes, R. M. (2020). A worldwide bibliometric and network analysis of work-based learning research. *Higher Education, Skills and Work-Based Learning*. Available ahead-of-print. <https://doi.org/10.1108/HESWBL-03-2020-0035>



education is continuously and cyclically used in educational innovation initiatives within and outside of Maastricht University. Ongoing innovation of the bachelor curriculum in Medicine is done in accordance with SHE research on programmatic assessment and self-regulation of learning. The redesign of SHE's own Master of Health Professions Education that is implemented in 2021 is a hallmark of impact of SHE's research on peers. Combining state of the art insights on 4C/ID curriculum development, competence development, programmatic assessment, coaching and feedback, an holistic, authentic-task, student-adaptive master programme was developed. Noteworthy marks of recognition on innovative learning environments are the awardance of an NWO-Vidi grant to Prof. De Bruin in 2019 on self-regulation of learning, and the ZonMW HGOG grant to Dr. Giroldi and colleagues, also in 2019, on innovating communication skills training for general practitioners. The NWO-Vidi grant has already resulted in a guest-edited special issue in a seminal journal, *Educational Psychology Review*<sup>11</sup>, introducing a theoretical framework on monitoring and regulation of learning efforts.

## | Relevance to society

As mentioned above, SHE achieves its societal impact through its engagement with and influence on learners, teachers and designers and professionals in the field of health professions education. SHE's relevance to society is achieved through direct use of its research products, but also through SHE Educates and SHE Collaborates activities.

Loco-regionally and nationally, SHE led the ZonMW-funded Pasemeco project (see [case study 5](#)) and researched palliative care education in undergraduate medical curricula in collaboration with all medical schools in the Netherlands and Dutch expertise centres for palliative care. The Pasemeco project has emanated in an educational toolbox for implementation in medical curricula and has led to a list of professional tasks in the field of palliative care that should be covered in the undergraduate curriculum. Of note is also the Interreg funded SafePAT project, which researches development of excellence in patient safety in cross-border regions (see [case study 6](#)). In this project, SHE was responsible for the needs analysis and conducted three studies to uncover opportunities and challenges in cross-border healthcare with healthcare professionals and patients in the Euregio Maas-Rijn (in Germany, Belgium and the Netherlands). Subsequently, SHE developed and evaluated two trainings for healthcare professionals. The NRO Comenius funded Study Smart project has resulted in an evidence-informed learning strategy training for undergraduate students, that is implemented across all faculties at Maastricht University, and at the Applied university Hogeschool Zuyd. Study Smart is gaining interest from higher education institutes worldwide with implementations now in Portugal and the US (see [StudySmartPBL.com](#)). Research on the implementation of Study Smart receives considerable social media attention (e.g., [www.learningscientists.org/blog/2020/8/20-1](http://www.learningscientists.org/blog/2020/8/20-1)).

Internationally, SHE Collaborates is creating impact through numerous consultancy and development projects. The vast range of SHE Collaborates activities in the 2018-2020 period is showcased in appendix 1b. SHE Collaborates engages in long term educational development projects based on requests from (educational) institutes abroad. Due to SHE's worldwide reputation, new requests reach us frequently. In case the partners are in the Global South, SHE Collaborates not only assists in developing a project plan to address their needs in capacity development in the area of health professions education, but also tries to attract donors to

<sup>11</sup> de Bruin, A. B. H., Roelle, J., Carpenter, S.H., Baars, M., & EFG-MRE (2020). Synthesizing Cognitive Load and Self-regulation Theory: a Theoretical Framework and Research Agenda. *Educational Psychology Review*, 32(4), 903-915. <https://doi.org/10.1007/s10648-020-09576-4>

find the resources to execute these projects. SHE Collaborates staff coordinates these partnerships (project and financial management) and contributes as educational facilitators in the capacity building activities. Depending on the needs and expectations the SHE Collaborates team members involve other consultants from SHE, Maastricht UMC+, other Dutch institutes for Higher Education, NGO's, local partners in the South, etc. Through their wide (inter)national network of educational and/or health experts SHE Collaborates can address the capacity development needs in a contextualized manner. One particularly striking example of SHE's societal impact is described in [case study 8](#), which describes a project focused on improving sexual and reproductive health and rights (SRHR) services and campaigns for students and staff of Universidade Católica de Moçambique (UCM) and Instituto Superior de Ciências de Saúde. After a cyclone hit Beira, Mozambique, on March 14th 2019, SHE Collaborates initiated a media campaign called 'Care for Beira' to help collect funds for rebuilding some of the damage. See, for instance, [www.umcrowd.nl/project/care-for-beira-all-under-one-roof](http://www.umcrowd.nl/project/care-for-beira-all-under-one-roof).

Finally, SHE's internationally renowned MHPE and PhD programmes contribute to the development of a growing group of health professions education experts with a state-of-the-art scientific knowledge base who contribute, each in their own way, both locally and globally to societal challenges in education and training of health professionals to improve patient care. Examples of this can be found in the results of the PhD Alumni survey 2020, particularly the open comments, see appendix 2e. Another poignant example is the way in which international PhD candidate Will Bynum uses his research on shame in medical education to help open up conversations about this taboo topic through a website called [www.theshameconvo.com/](http://www.theshameconvo.com/).

## | Case studies

In part 2 of the annexes, the following case studies that support the above narrative about SHE's research quality and societal impact have been included:

### **Case studies 2018-2020**

1. Designing Education with 4C/ID
2. Programmatic Assessment
3. Progress testing: Longitudinal knowledge assessment and feedback
4. Problem-based learning: Alive and kicking worldwide
5. Pasemeco: Improving palliative care education for our future doctors
6. Excellence in patient safety in cross-border regions: SafePAT
7. Educational Taskforces FHLM: Promoting Innovations in Education
8. Project Mozambique
9. Meta-research: the science of healthcare education science

## | Trends regarding research staff, funding and the duration/success rates of the PhD programme

Appendix 1c presents trends regarding staff, funding and the duration and the success rate of the SHE's PhD programme. Most notable is that SHE has had to reduce its number of total staff due to financial challenges. Despite this, the total amount of funding has stabilized.

## 7. SWOT analysis

Below we describe the SWOT-analysis for SHE based on discussions within SHE Research, SHE Educates, SHE Collaborates and the SHE management team.

Figure 10. SWOT analysis SHE



The SWOT analysis in figure 10 differs to some extent from the approach to the SWOT analysis that was part of the 2012-2017 self-assessment report. In the previous self-assessment the SWOT was more focused on SHE Research core activities. As is explained in other chapters as well, SHE's Management Team is deliberately focusing on the synergy between SHE's core activities. The combination of these core activities and the synergy between them, is a unique feature of SHE as a research school in the (inter)national landscape of research groups on health professions education. Hence, we identified this as one of the opportunities in our SWOT. The other points in this SWOT analysis are to some extent also influenced by this broader perspective on what SHE is.

Strengths that we identified are in line with the evidence of our research excellence and impact as presented in this mid-term review. SHE has an excellent international reputation, which is evidenced by its many international PhD candidates, its large and strong network of collaborators, high research output and the signs of recognition it receives. SHE is regularly proclaimed as the best medical education research institute worldwide. With new leadership



and a revised management team and structure, SHE remains to be viable and looks towards the future with ambitious goals. The FHML, Maastricht UMC+ and Maastricht University environment supports our international outlook, ambitions and focus on good education through research.

We recognized two weaknesses. First, despite a number of initiatives to stimulate and monitor progress, there remains significant variability in the progress of international PhD candidates. These PhD candidates typically combine their PhD research with a job in the health professions. PhD TRACK offers ways to monitor their progress and PhD candidates and supervisors have received further instructions on how to use the progress meetings and report them in TRACK in 2020. So far, it looks as if most PhD candidates have been able to creatively find ways to keep their research going despite limitations as a result of the COVID-19 pandemic. Long term consequences are hard to predict. A second weakness is our communication strategy. SHE has a very active communication officer who tirelessly promotes SHE through our newsletter, at conferences and who has been very successful in recruiting participants to our various programmes. Nonetheless, her efforts could be even more effective if all SHE staff would more actively and strategically share their work and successes. SHE has tried to maintain a presence on social media channels, but apart from a few active individuals, this has not materialized. Therefore, SHE has decided to focus on its website and a LinkedIn presence. A renewed website will be launched in 2021. That will be combined with the installment of a communication taskforce that will help to provide content for the LinkedIn page. SHE staff will be involved in both the content of the website and LinkedIn page.

The threats identified are a forced standardization of the PhD programme, e.g. coursework and uncertain long-term effects of COVID-19 pandemic on SHE core activities. First, there is a long-standing inclination to impose more and more requirements on the amount of coursework that must be part of a PhD programme, especially in biomedicine and health sciences, the so-called "standardization of the third cycle" (see [www.orpheus-med.org](http://www.orpheus-med.org)). If this were to increase, it might jeopardize the flexibility and attractiveness of our international PhD programme, which emphasizes personalized learning plans and guided learning-by-doing rather than compulsory coursework for all PhD candidates. Second, as for many research schools and businesses, the long-term effects of COVID-19 are uncertain. Limited international travel can be compensated for by more online activities, but there are also SHE Research, Educates and Collaborates activities that require in person interaction. It is also uncertain if, globally, healthcare will recognize that strained healthcare systems need to invest in education and HPE research if they want to improve, instead of restricting budgets and opportunities in short-sighted attempts to mainly focus on providing healthcare.

Finally, we want to highlight two opportunities; the unique opportunity that results from increasing the synergy between SHE core activities and the further involvement of alumni and the SHE community in our activities. In chapter 3 we explained the rationale behind the strategic choice to focus on synergy between the three SHE core activities. We won't repeat that here, but we do want to stress the uniqueness of this opportunity for SHE as a research school both within the FHML/Maastricht UMC+ environment and globally. Second, as we gradually continue to grow our SHE Community, collaborators across the globe and alumni of our diverse programmes are an asset whose potential we have only begun to tap into. In the near future we plan to develop policy to further support this.

## 8. Strategic plans

In chapter 3 we have described the vision, mission, values and strategy of SHE compared to the previous review in 2018. The SWOT analysis captures many of the deliberations that went into the strategic plans of SHE and the changes that we described in chapter 3. Taken together, we have summarized the strategic plans for the next five to ten years as:

- SHE further increases the impact of its activities internationally and loco-regionally. Building on our ongoing investment in a healthy academic culture, research ethics, and an open and inclusive workplace (see chapter 5) we strive to create the foundation for impactful research and innovation in the domain of health professions education. We aim to continue to increase the publication of our work in open science databases and to use our website and LinkedIn page to further share our work. A further development of the research programme is planned to start in the second half of 2021. A combination of strategic recruitment of people who will continue to build our research school through their scholarly work and investments in the SHE Community are the foundation for the continued success of SHE as the top-research school in health professions education.

- SHE strengthens the synergy between its three core activity domains; SHE Research, SHE Collaborates, SHE Educates. This synergy is evident in an increased interconnection between these three activity domains and supported by our 'double-chain approach' (see chapter 3). The communication strategy mentioned in the SWOT is instrumental in supporting this synergy. Investing in our communication staff and budget will be instrumental in achieving these ambitions. Also, in our recruitment effort, we aim to attract new staff members who further increase diversity (in terms of both disciplinary background and nationality) and who can contribute to building bridges between our Research, Education, and Collaboration activities.

- SHE intends to gradually grow in terms of research output and impact. This growth is enabled in part by investing in SHE staff and in part by investing in the SHE Community. We are gradually increasing the number of completed PhD projects to 15 per year. This was achieved in 2020 and seems achievable again in 2021 as long as we can balance the intake of PhD candidates with good quality supervision. SHE Educates and Collaborates have specific challenges in terms of growth. For Educates, moving to a new MHPE and more demand-driven online education will be key. Once that is achieved it will become clear where growth is achievable. SHE Collaborates has successfully obtained funding. Yet, because external funding is always temporary, the perceived risk of hiring staff on a permanent contract is a challenge. This topic will be discussed with the FHML board.



## 9. Viability

Over the past three years, SHE has been in a period of re-focusing on core activities and has seen a slight decline in total staff. This has coincided with financial restrictions. A positive financial balance is expected again in 2022. The organization of SHE has been strengthened, a new scientific director and managing director started in 2019/2020. The SHE leadership (including the teams involved in the three SHE core activities) is ready for the future and jointly works to take advantage of the many opportunities ahead. For the coming six-year period, the focus will be on capitalizing on our strengths and managed growth. With the retirement of two professors and two associate professors, there are ample opportunities for strategic recruitment, and plans are already being discussed with relevant stakeholders within our organization. SHE will further develop its research programme and make sure it builds on the strengths of our three core activities. Next to a broad range of topics and expertise, we expect the research programme to also identify pressing issues that SHE will work on in a 5-10 year period. Together with a range of partners, such as other faculties at Maastricht University, other research schools at FHML, clinical departments at Maastricht UMC+, universities of applied sciences, regional structures (i.e., care institutes/hospitals and educational institutes in Limburg and the Meuse-Rhine Euroregion) and with international partners (both individuals and institutions) we will apply for funding for our core activities (for instance ZonMW projects, NWO Comenius, NWO practice-oriented research in higher education, Nuffic, European grants).

Finally, research quality and societal relevance go hand in hand. As we also explained in chapter 6, SHE achieves its societal impact through a connection between our research activities and engagement with students in health professions, the professionals themselves, and those involved in education (e.g., teachers, programme directors, student advisors). The impact on peers and our societal stakeholders enables our impact on patient care, patients and thereby society at large. Our unique combination of expertise creates the opportunity to continuously learn in the cycle between research, practice and theory development. Important foundations for these plans are continued focus on open science, investing in educating future HPE educationalists and researchers through our short courses, MHPE and PhD programme, and nurturing the academic culture that enables motivated, inquisitive people with diverse backgrounds and outlooks on life to contribute to a shared vision: **Through research, education, and innovation work towards a world in which all healthcare professionals are well educated and in the best position to contribute to high quality care.**

We end this mid-term evaluation report as we ended the 2012-2017 self-assessment report: we face the future with confidence.





# Overview of appendices of the mid-term review

## Part 1 - appendices

### 1. Compulsory

- Appendix 1a Factual evidence on research quality
- Appendix 1b Factual evidence on relevance to society
- Appendix 1c Research staff, funding and the duration/success rates of the PhD programme (tables)

### 2. Additional information

- Appendix 2a General information regarding MUMC-FHML
- Appendix 2b MUMC-FHML policies with regard to open science, PhD policy and training, academic culture, and human resources policy
- Appendix 2c Report of the Midterm Review Committee 2015, Reaching out for another Summit
- Appendix 2d Assessment report of the 2012-2017 review
- Appendix 2e PhD Alumni survey 2020
- Appendix 2f SHE PhD Guide (February 2021)
- Appendix 2g Research programme 'Task-centered learning environments in the health professions'
- Appendix 2h List of PhD thesis 2018-2020

## Part 2 - Case studies

1. Designing Education with 4C/ID
2. Programmatic Assessment
3. Progress testing: Longitudinal knowledge assessment and feedback
4. Problem-based learning: Alive and kicking worldwide
5. Pasemeco: Improving palliative care education for our future doctors
6. Excellence in patient safety in cross-border regions: SafePAT
7. Educational Taskforces FHLM: Promoting Innovations in Education
8. Project Mozambique
9. Meta-research: the science of healthcare education science





	A
B1	9
B2 Kinderafdeling	B
B3	B
B4	B
B5	B
C2	C
C3	C
C4	C
C5	C
D2	D
D3	D
D4	D
D5	D
E2	E
E3	E
F3	F
PICU (kinder IC)	B
Verloskamers	D





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