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## Unraveling the complexities of enacting change in undergraduate medical curricula

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# CHAPTER 6

*General discussion*



## **General discussion**

The main aim of this thesis was to better understand the complexities of enacting change in undergraduate medical curricula, seen through the eyes of various stakeholders. The exploratory studies aimed to provide empirical enrichment and illustrations of particular phenomena in curriculum change processes; change leadership, stakeholder involvement, governance and the role of context. This final chapter summarizes the thesis' main findings, describes how the results relate to and extend existing knowledge, discusses practical implications, addresses the strengths and limitations of the studies conducted, and proposes directions for future research.

## **Main findings of this thesis**

In chapter 2 we dived into the experiences of curriculum change leaders responsible for enacting change in undergraduate medical curricula. We showed that change leaders experienced the change processes to be highly dynamic and complex, fraught with several challenges. Three challenges of particular note were dealing with the large and diverse groups of stakeholders; contending with resistance; and steering the change process. We found that change leaders dealt with the challenges using a variety of strategies, and that central to the process of navigating these challenges was maintaining awareness of ever-changing contextual situations. Change leaders used a variety of methods to be aware of what was going on, to make decisions about what actions to take in response, and who to involve, at what time, in the process. This empirical study enriches the understanding of how institutional leaders navigate the complexities of major medical curriculum changes.

In chapter 3 we explored how change leaders represent educational scientists in interviews about a major curriculum change process. We showed that a diverse array of perspectives are held, ranging from educational scientists barely-not-being-included in the process to notions of strong one-on-one collaborations. Our results led us to believe that in various institutes these educational scientists do not always seem to be optimally visible, engaged and connected, which is inconvenient both for the units in which these scientists work and educational scientists themselves, as well as for the broader organization in general. We believe that it is important to invest in interpersonal relationships to strengthen the internal collaborations and make sure people are aware of each other's existence and roles in the process of curriculum change.

In chapter 4 we looked into the role of governance in translating curriculum ideas on paper into educational practice. Our findings show that the way decisions are made, implemented and monitored plays a prominent role in the actual establishment of the new curriculum. We observed that each institute had different governance processes in place, ranging from unclear decision making,

to strict, top-down driven decision making, to more free, teacher driven decision making. The way decision making was structured in the institutes influenced the final outcomes of the curriculum. Therefore, each governance process will have its pros and cons, and finding ‘the right way of doing’ is challenging and highly context depending. However, explicating the governance processes in place and making clear arrangements about the decision making procedures, seems an important step in any institute.

In chapter 5 we explored the contextual aspects impacting the adoption of newly developed learning modules about health literacy, in health professions curricula in different European countries. We observed two overarching themes in which differences appeared between the participating institutions: the drivers of change and the processes of change. We found for example that the participating institutes differed in the availability of related courses in which the learning materials could be adopted. This created differences in possibilities to offer the learning modules to all students. Furthermore, some negative attitudes in the institutes or society towards the specific patient groups addressed in the learning modules, in this case health illiterate patients, were expressed, making the learning modules in some contexts a product that is difficult to sell. Also important differences in the implicit and explicit rules to follow were observed, such as following the formal or informal routes first to get things done. The results showed that each context has different needs and asks for different approaches to make implementation of learning modules happen, and that awareness about these differences is therefore of importance for those involved in transnational curriculum change processes.

### **Leading curriculum change processes**

According to Hawick et al. the reason why change processes in medical schools are perceived to be so challenging, might be because *“medical curriculum reform is often seen as linear but yet medical curricula themselves are complex and messy.”*<sup>1 (p.337)</sup> This thesis contributes to our understanding of this complexity by empirically exploring several aspects of curriculum change processes, and shows, indeed, the dynamic and complex nature of bringing about change in undergraduate medical curricula. Change leaders leading these processes therefore fulfill a challenging task. Understanding one’s context (chapter 5), dealing with various stakeholders, institutional resistance and the tensions appearing in steering this process as a leader (chapter 2 and 3) and keeping sight of the hard and soft sides of academic governance (chapter 4) – asks for an all-round leader who is able to oversee and manage all these social and organizational aspects. Being a change leader therefore asks for the ability to remain situationally aware,<sup>2</sup> in order to be able to respond to the constantly changing circumstances, and adapt a broad repertoire of strategies to meet the demands of the emerging situations.

### *Situational awareness*

Situational awareness is mostly known from the domain of aviation and could shortly be expressed as “*being aware of what is going on.*”<sup>2 (p.1)</sup> Situational awareness is important in dynamic, complex situations with high amounts of information processing, and where poor decision making may lead to serious consequences.<sup>2</sup> Most studies so far seem to have focused on domains where serious consequences are most apparent, such as military operations, nuclear power plants and healthcare environments.<sup>3</sup> However, the concept of situational awareness is equally applicable to the dynamic and complex organizational change processes that also involve a lot of information processing and where poor decision making might affect the outcomes of the curriculum change, the organization and its people. The observation of the importance of situational awareness in curriculum change processes was not only a result of our curriculum change leaders study in the Netherlands (chapter 2), but could also be drawn as an insight from our European study (chapter 5), in which the diversity of contexts calls for situational (contextual) awareness of transnational project leaders.

Furthermore, the finding that curriculum change leaders adapt a broad repertoire of strategies, resonates with general change management literature. Various authors emphasize that using different approaches and lenses to look at change will offer a more comprehensive understanding of what is going on, compared to single, one-dimensional change approaches,<sup>4,5</sup> that suffer from inflexibility.<sup>4</sup> It is unlikely to think that there will be a one-size-fits-all approach to curriculum changes. Each lens or change approach will have things in common with other lenses or approaches, and they can add aspects and perspectives that the other ones overlook. Smith and Graetz identified nine change perspectives, that all have different underlying assumptions, strengths and weaknesses and management focus.<sup>4</sup> For example, as mentioned in chapter 1 in this thesis, the rational perspective assumes change to be a linear, planned process with a focus on leadership, strategy and planning.<sup>4</sup> Whereas other perspectives for example tend to emphasize the interconnectedness of change with all aspects of an organization (systems perspective), or the human psychological perspective with a focus on people’s transitions and adjustments, and the cultural perspective with a focus on (interventions on) deep values and rituals.<sup>4</sup> Although this book might be predominantly focusing on the business domain, the different perspectives could provide valuable insights for medical school’s curriculum change processes, as it describes the various points of view one could have when perceiving and approaching change.

Drawing on various change perspectives makes it better possible to accommodate to the paradoxical nature of change processes.<sup>4</sup> Acknowledging the appearing tensions between different perspectives is important, because that corresponds to the tensions found in the reality of change in organizations.<sup>4</sup> In-

consistent states exist simultaneously in organizations, creating tensions that are paradoxical in their nature.<sup>6</sup> The next paragraph will elaborate on this.

### *Dealing with tensions*

In change management, one perspective that emphasizes the importance of dealing with the inevitable tensions that arise in dynamic and complex processes, is called the dualities perspective. In this perspective, instead of trying to fight against the tensions and thinking in either-or, one acknowledges the simultaneously existing tensions in organizations and change processes.<sup>4</sup> Examples of arising tensions are between centralization and decentralization, individual and teamwork, a long-term vision and short-term performance management, collaboration and competition, creativity and efficiency, freedom and control, new and old, and change and stability.<sup>4</sup> These 'conflicting truths',<sup>7 (p.761)</sup> are not there because of failure of any kind but inherently exist in organizations. In the enactment of undergraduate medical curriculum changes, these tensions are recognizable. Our change leaders experienced similar tensions, such as when dealing with their responsibilities of being finally responsible and therefore willing to direct and speed up the change process, and on the other hand providing enough freedom to stakeholders, striving for their inclusion and ownership. Additionally, they expressed the tension between being open for adjustments in the curriculum design, but at the same time still having the final goal in mind, not moving too far away of what was initially intended (chapter 2). Similarly, the governance study (chapter 4) shows that, at one place, to reach coherency in the curriculum, a strict and top-down decision making structure was established. However, this created tensions with teachers who experienced a lack of involvement and undesired loss of autonomy. At another place, teachers received a lot of freedom in decision making which contributed to their satisfaction, but on the other hand created tensions with the coherency of the program as potentially too many people were doing 'their own thing'. Additionally, in the unpublished parts of the interviews, the tensions between control and creativity/freedom was noticeable in the wish to create a revolutionary new curriculum, but feeling 'caught' in the requirements of the national Dutch Raamplan (the national blueprint). Likewise, the involvement of educational scientists reflects tensions (chapter 3), as becomes clear in the explanation of the different worlds of the hospital versus the educational support departments, the different ways of thinking and working between doctors (teachers) and educational scientists, and the varying expectations between change leaders and educational scientists. Finally, tensions also arise between a wish for stability at one hand and change at the other. For example, the logistic support departments benefit most from a long-lasting, stable curriculum that is gradually improved over the years, whereas innovative leaders might want to change more radically, shaking up the status-quo. *"Ironically, change*

*management cannot only be about change. The need for both continuity and change means becoming comfortable with the ever-present dilemma of tensions between the two.*"<sup>4</sup> (p.183)

Although for some change leaders these tensions were natural occurring phenomena (they considered it to be something that is inevitable to escape due to the nature of these processes), many also expressed the challenges they experienced in dealing with these tensions and the responses of various stakeholders. Rather than fighting against these paradoxes, trying to 'solve' them, which is impossible in its nature, scholars suggest to embrace these tensions. *"Exploring the links between opposing dimensions and exploiting the tensions that arise from paradox provide scope for rich insights into the complexities, ambiguities and nuances of the change management process."*<sup>4</sup> (p.185) Exploring these tensions with all change stakeholders, including the leader(s), and making the tensions explicit, is a suggested strategy to be able to learn from and deal with these tensions: *"Rather than management being the sole responsibility of a few, managing paradox requires that local actors learn to cope with their tensions (...) Openly and critically examining [local actors'] polarized perceptions (...) may enable more dramatic changes in their understandings and behaviors."*<sup>7</sup> (p.764)

### *Preparation and support*

Dealing with these, and other challenges that are inherent in complex processes, asks for preparation and support. Having a broad repertoire of change strategies is probably common for change managers in other domains, however, could not be expected to be always available in the repertoire of change leaders in medical schools. In unpublished parts of our interviews, some change leaders explained they had followed a course in which, albeit limited, aspects of change management were discussed. Others mentioned to work from their own experiences in previous leadership positions, and one actively sought help by visiting other schools that recently underwent a similar major change process to learn from others' experiences. Overall, it was mentioned that, unfortunately, visiting each other's institute barely happened with the deliberate intention to learn from each other. At several moments in the change process, change leaders felt lonely in their job/role, and a common aspect they had missed the most were peer-group meetings or the possibility to have peer sparring partners. Overall, the various discussions with interview participants in our studies set the impression that curriculum change processes in medical schools are usually underestimated, and that the support for change leaders in their challenging task is limited. Fortunately, both nationally,<sup>8-10</sup> and internationally,<sup>11,12</sup> various initiatives and courses are available for (medical) educational leaders. However, further research should be conducted to find out whether those courses fulfill the needs of medical educational leaders in curriculum change processes. Additionally, establishing peer-group meetings

to facilitate exchange of experiences, might be a possibility to support change leaders in their role.

However, notwithstanding the foregoing, the more we dived into these change processes, the more we see how much of a team effort these curriculum changes are. Creating a team of complementary team members around the change leader is therefore vital. Concluding from the interviews, curriculum change committees are most of the time composed of a change leader with a clinical background, complemented with people having teaching experiences and content knowledge, and, in some cases, educational scientists drawing attention to the pedagogical aspects of a curriculum. However, someone who has experience with, and explicitly focusses on, the organizational processes is usually lacking. We think that adding such a process-person might be of help to ensure that the organizational processes receive explicit attention, such as keeping sight on the stakeholder involvement, governance processes and appearing tensions. Additionally, this person could also help extend the change leaders' situational awareness. However, the importance of collaboration does not only apply to the curriculum change committees, but relates to all the stakeholders that are involved. The next section will elaborate on people's individual and collective agency and the ideas of a shared social identity in curriculum change processes.

## **Agency**

To perceive our studies from a broader perspective, two lenses were applied: agency and social identity theory. When people try to bring about change in their organizations they rely on their agency. Expressed the shortest, agency is described to be a person's capacity to act.<sup>13</sup> At its core, *"agency is concerned with the extent to which individuals are able to exert control in their personal and social lives"*.<sup>14 (p.2)</sup> Being able to do something is a prerequisite for change, and agency is about one's personal power to effect such changes. However, as Enfield and Kockelman explain *"People never really act alone. Our agency is enhanced when we cooperate with others and when we accept their help."*<sup>15 (p.xi)</sup> Bandura explains that agency indeed could be perceived on three levels: personal, proxy, and collective.<sup>16</sup> Personal agency refers to one's own capacity to act and exert control, whereas proxy agency refers to peoples' use of others to reach their own goals.<sup>16</sup> When exercising collective agency people pool their qualities and resources together to reach a shared goal.<sup>17</sup>

As shown in the studies of this thesis, a tremendous amount of people from various backgrounds, at various moments in time, having different ideas and agendas, exercise agency in curriculum change processes. Although various people were mentioned to be involved, the studies reflect the agency of the change leaders and educational scientists in chapter 2 and 3, but also the teachers in chapter 4, who exert control through the available governance structures at



place, trying to navigate through the organizational processes to enact change, and influence their part of the process and the curriculum. However, in the end, it is the interplay between the various people that have to work together to reach the shared goal; a new curriculum. As one of our change leaders mentioned, *“curriculum change is about creating one, joint product together with various stakeholders involved.”* This also becomes clear in chapter 5 again, where people from several countries work together to create health literacy learning modules and implement these in diverse social contexts. The study shows that the way agency is exerted is also strongly context dependent. This is not only reflected in the explanation of peoples’ experienced weak or strong positions in the institute to get things done, and their dependence on others and upper management, but also in the collaborations that were established by project leaders in the different countries. Some could establish collaborations in their own institutes, others were depending on collaborations with people from institutes other than their own, showing even more the importance, and also potential difficulties, of establishing collective agency.

Finding the ability to act, either as an individual or as a group, is a challenging task in professional organizations, like universities and hospitals. In these institutes, various formal and informal powers exist, many different cultures, habits and beliefs are present, and people tend to strongly rely on their own professional autonomy.<sup>18</sup> Being seen and valued is therefore an important asset for those who work there. As Bandura explained, when people experience a lack of personal agency, one should look for proxy agency, or join particular groups to profit from the more powerful collective agency.<sup>16,17</sup> Therefore, for those involved in curriculum change processes it is important to know their capacity to act and see where they have influence or not. For those who experience a weaker position (e.g. the health psychologists in chapter 5), it is important to see to what people or groups they could connect, to benefit from proxy or collective agency to establish change. This connection process could also be actively supported or facilitated by those leading changes, in order to benefit from the input of all relevant stakeholders and build upon each other.

### **A shared social identity**

As the studies in this thesis showed, people from different backgrounds, having various ideas and convictions about what the curriculum should look like are involved in curriculum changes. A frequently mentioned issue in the interviews was the difficulty to understand each other’s’ ‘world’ and language. In the European study in chapter 5 this was probably most literally reflected in the fact that people from different countries had to work together, and where understanding the differences between the various societies, institutes and educational programs was of high importance for the development and adoption of the learning

modules. Overall, participants perceived the most apparent differences between the 'hospital world' and the 'educational world' (which predominantly referred to the different ways of working, talking, doing, and thinking between doctors and educational scientists in the educational support departments). Bringing these worlds together, and smoothening the collaborations, was a challenge.

From the perspective of social identities,<sup>19</sup> one could say that the people involved in curriculum change have different social identities. These social identities are derived from the various social groups to which people belong, together with the value and emotional significance that are attached to these group memberships.<sup>19</sup> In our case, with all the different people involved, curriculum change processes could be perceived as an assembly of various social identities that come together, and where people have to identify, collectively, with each other and the same new goal; the new curriculum. To improve intergroup relationships, "*identification with a more inclusive, superordinate identity*" is claimed to be helpful.<sup>19</sup> Therefore, actively facilitating this group feeling around the inclusive superordinate identity of a new curriculum might be helpful for curriculum change processes. Creating the feeling of being a team where your own social identities, and the shared, new identity, may have a place, takes time. Our advice would be that within the usually various teams that work on a new curriculum, room should be made for exploring the different worlds, perspectives, perceptions, qualities, emotions, relationship, languages and ways of working.

### **Methodological considerations**

One of the strengths of this thesis are the empirical insights into the processes of undergraduate medical curriculum change. In the literature, predominantly, important factors to take into account when changing a curriculum have been described.<sup>20-23</sup> The studies in this thesis add to this literature by zooming in into the processes of change in practice; what does the role of leadership, educational scientists, governance and context look like in actual curriculum change practices. Passed and running processes with various stakeholders involved in curriculum change were explored and evaluated. Therefore, the results provide a rich and diverse palette of experiences that are of relevance for future change processes. Furthermore, former studies on medical curriculum change focused on single medical schools.<sup>1,24,25</sup> Our study about curriculum change leaders covered all eight medical schools in the Netherlands (chapter 2 and 3). Similarly, the studies about governance and context were conducted in multiple institutes, either in the Netherlands (chapter 4) or across Europe (chapter 5). This thesis therefore offers a more comprehensive view on curriculum change processes in addition to the existing knowledge.

As the studies in this thesis have shown, each curriculum context is unique,

asking for an awareness about the context-specific needs to bring about change. However, although differences will exist between curriculum contexts, the results of this thesis could be used as a starting point for reflection of people involved in curriculum change processes. We explored the complexity of curriculum change processes through a variety of stakeholder perspectives in multiple institutes in different European settings. Therefore, considering the transferability of our findings,<sup>26</sup> we believe that our findings could be meaningful and useful in other contexts too.

The methodological rigor of this thesis is reflected in the use of different methodologies and stakeholders, and a diverse research team, which facilitated triangulation of the research findings. Qualitative approaches are considered beneficial for exploratory research.<sup>26</sup> Accordingly, for data collection, we used in-depth, face-to-face, one-on-one interviews for our exploratory research questions. By using this qualitative method, we allowed ourselves to dive deep into participants' personal stories and experiences with curriculum change processes.<sup>27</sup> In addition to this method, we used visual tools such as the 'briefing (photo) cards' in the interviews with change leaders (chapter 2) and the 'rich pictures' in the governance study (chapter 4). By doing so, we enriched not only the interviews, but also the medical educational research domain, with two relatively new methods. By associating their experiences with a photo card, this method enabled us to start the conversation with the participants on a more personal level. Additionally, the use of rich pictures enabled us to get a more comprehensive view on the complexity of governance in curriculum change processes. Although we cannot say whether we would have had different outcomes when using only interviews, we experienced the use of rich pictures as an enrichment of the conversations. This method allowed us to discover the complex relationships between the various aspects in the drawing, and therefore a deeper understanding of the topic of study.<sup>28</sup> We also felt that this method was helpful for most participants to recall their experiences; drawing asks for making things explicit, either on paper, or in one's minds.

Additionally, for the separate papers different analytical methods were used; qualitative descriptive content analysis (chapter 2 and 4), template analysis (chapter 5), and a new method in medical education research: membership categorization analysis (chapter 3). Qualitative descriptive content analysis and template analysis orient towards richly summarizing the contents of interview data,<sup>29</sup> which therefore suited our goal to reach a more comprehensive view on the various aspects that contribute to the complexities of enacting change in undergraduate medical curricula. Using a rather different analytical method for the study on the involvement of educational scientists - the membership categorization analysis - allowed us to explore our data on another level of depth by focusing on language use on a detailed level.

Researcher triangulation was strived for by the involvement of people from different backgrounds, (such as psychology, (veterinary) medical sciences, educational sciences and linguistics), having different experiences and qualities related to doing research and the topic of interest (such as distinct knowledge of doing qualitative research and experiences with the practice of major curriculum change processes). Furthermore, to ensure accuracy and enhance trustworthiness, we made sure we reached consensus on the coding and the interpretations by various team discussions.<sup>30</sup>

To enhance credibility and create a comprehensive set of findings, we collected data in multiple institutes, from the perspective of various stakeholders.<sup>26</sup> Additionally, we carefully described our research steps in the separate research papers, used illustrative quotes in the results sections, and wrote a research diary in which the various steps and evolving interpretations of the research were logged.

However, together with the strengths of our research practice, there are limitations to be considered. Since the studies in this thesis are based on interview data, the results relied on the recall of the participants. Apart from the study about the role of context in which participants were interviewed who were still in the process of change (chapter 5), the other studies looked back on the change processes in the Netherlands that had taken place ranging from less than one year ago up to six years ago (chapter 2, 3, and 4). Therefore, a recall bias is inevitable. On the other hand, an advantage might be that looking back on a process after a longer period of time allows for reflection and critically examining the events, distilling what was of utmost importance and what was not in relation to the process. Based on the lively descriptions of the participants, we do believe that our studies revealed worthwhile and meaningful results.

Although a variety of stakeholders were included, there are still more stakeholder perspectives to consider to enhance our understanding of curriculum change processes. For example, the role of educational scientists was explored through the eyes of the change leaders. It might be interesting to also study educational scientists' own experiences with being involved in curriculum change processes. Furthermore, perspectives of students, deans, hospital and university board members and logistic staff members are not included in this thesis, yet, worth being studied since they all, in their own ways, contribute to the establishment of the curriculum.

Furthermore, the role of the researchers in qualitative research is important to consider.<sup>26</sup> Working from a social-constructivist perspective, I assume that there is no absolute 'truth' in social processes,<sup>31</sup> such as curriculum change. In that same perspective, the 'reality' we perceive is always constructed by our social, historical and individuals contexts.<sup>31</sup> In qualitative research, the knowl-

edge we create is therefore inevitably influenced by our own perspectives and the interactions with those involved, such as interviewees. Inherent to qualitative research, different interviewers will gather different data. As a psychologist interested in change in organizations, my attention might have been particularly prone to the human dynamics in organizational processes, which also inevitably shaped the data interpretation. Therefore, as described above, a variety of different team members with different backgrounds and experiences were supporting me, which enabled us to perceive the data from a rich variety of perspectives and interpretations. Similarly, my novice status in the medical educational domain might have led to underexposing certain aspects, might have limited the scope of my probes, and might have steered me in different directions of interest compared to others. For example, those who have more experience in leading change, like change leaders, or those being part of change, like teachers. On the other hand, I have experienced my novice status and relative outsider position to be an asset. It gave me the opportunity to have open conversations with the various participants I interviewed. People felt comfortable to share their positive, but also negative personal experiences, their perceptions about the pros and cons of the change processes in their organization, and provided me rich insights in their particular contexts.

### **Future research**

This thesis consists of four exploratory studies about the processes of curriculum change. A next step could be to narrow the focus to some in-depth, follow-up questions on particular aspects in these processes. We will first provide methodological suggestions, followed by ideas about particular topics to be explored.

One research approach that could serve as a valuable addition to the methods we used, is phenomenology. *"Phenomenology is a form of qualitative research that focuses on the study of an individual's lived experiences within the world,"*<sup>32</sup> and enables to learn and broaden the understanding of a particular phenomenon. Agency and social identity development may be interesting topics to study from a phenomenological research approach. For example, understanding, on a deeper, personal level, where and how people find and perceive their personal agency in curriculum change might help us further in understanding the dynamics in these complex processes. *"By examining an experience as it is subjectively lived, new meanings and appreciations can be developed to inform, or even re-orient, how we understand that experience."*<sup>32</sup> One could explore how agency and the abilities to get things done are perceived at the curriculum team level, or within other groups, such as teachers and educational scientists. Additionally, another group that might be interesting, and is also marginally studied, is the group of individuals that are engaged in the logistics and scheduling activities of the curriculum. As understood from our interviews, this group plays an important

role in bringing about change on an operational level, yet are easily forgotten in the process. Similarly, how various stakeholders in curriculum change processes give meaning to a shared social identity, could be explored with a phenomenological approach.

Another methodology that might be interesting to use is grounded theory. *“Grounded theory is recognized as a suitable methodology to gain an understanding of underlying social processes associated with a phenomenon.”*<sup>33</sup> (p.367) For example, considering the shared social identity, better understanding peoples’ (de)identification with the new curriculum and its processes might help us better understanding the mutual relationships and perspectives on such change processes, and might give starting points for improving the necessary in-group dynamics.

Lastly, an ethnographic approach would be valuable. Ethnography is a social research method, which uses various sources of information: *“The ethnographer participates, overtly or covertly, in people’s daily lives for an extended period of time, watching what happens, listening to what is said, asking questions; in fact collecting whatever data are available to throw light on the issues with which he or she is concerned.”*<sup>34</sup> (p.3) In the curriculum change context, this approach could be of interest to further our understanding of the different worlds - ‘cultures’ - of the hospital and the educational support departments. Diving into these different worlds, one could explore the particular characteristics, the perceptions about each other, and how the different stakeholders deal with curriculum change processes.

Additionally, future research might want to study the support that is helpful for curriculum change processes. This could be for change leaders, but also for curriculum committees who, in our minds, should be well supported to bring about change. Also the people in middle management positions like course coordinators might feel a need for support to bring about change on the level of translating the ideas on paper into educational practice. Investigating the personal and group needs for support could be an important starting point. In our own medical school, an educational leadership course was developed for middle management positions like course coordinators. This course also focuses on curriculum change processes such as change leadership, governance and group dynamics. Such trainings are valuable research objects. Understanding and further improving the impact of such courses could be done by investigating whether people perceive these trainings to be supportive for their abilities to bring about change.

Additionally, two particular persons who were repeatedly noted to be of importance for change leaders were the Dean (Board of Directors) and/or the Associate Dean of Education. Better understanding the dynamics of the relationship between the (Associate) Dean and the change leader is of relevance, as without these persons the curriculum change leaders reported to be limited in their

abilities to bring about change. This was shown in the cases where the Dean was supportive, which helped the process, as well as in the opposite cases in which the lack of support of the Dean was considered to be seriously damaging and hindering the process (chapter 2). Similarly, in the interviews of chapter 5, the important role of people in higher management positions was mentioned, and also differently perceived in different contexts. This shows again that understanding the different dynamics and relationships, and the way higher management values and perceives curriculum change, is valuable information for bringing about change, and therefore worth being studied more specifically. Diving deeper into this particular relationship could be done from both perspectives; the change leader and the (Associate) Dean. Knowing more about the dynamics between these stakeholders not only provides new insights into this mutual relationship, but also into personal, proxy and collective agency in curriculum change processes.

### **Practical implications**

The results of this thesis contribute to raising awareness about the complexity of curriculum change processes, which could be useful and insightful for all stakeholders involved. This awareness relates to insights into the challenges of being a leader that might be helpful for future change leaders to learn from, but also for others such as those in higher management positions to better understand the difficulties of this position and the possible needs for support. Furthermore, this awareness relates to the importance of stakeholder involvement. The chapters in this thesis actually show that curriculum change processes are the shared responsibility of a variety of stakeholders, rather than one leading person. Based on this perspective, we have the idea that the emphasis should be much more on the formation of *teams* in the organization, in which even the role of a separate, 'lonely' change leader could be discussed. Although the feasibility of the following suggestion should be tested in practice, we suggest that a formation of a threefold leadership team that co-leads the process could be beneficial for medical curriculum change processes. This type of collective leadership is referred to as integrated shared leadership.<sup>35</sup> To guarantee the necessary attention paid to the three main pillars of curriculum change, this threefold team consists of people with credible experience with (pre)medical curriculum content, pedagogical, and change process aspects. In addition to the usually selected leader with a (pre) medical background to guarantee the relevant curriculum content knowledge, the pedagogical leader might safeguard the educational and pedagogical developments and facilitate the better use and positioning of educational scientists in medical schools. Additionally, the process leader could pay explicit attention to the change aspects such as structuring the process by paying attention to stakeholder involvement, governance and communication. In line with what is

described previously, considerable time should be spend on the establishment and functioning of this team.

Around this threefold leadership team should be a strong team of representative stakeholders, however, also in the broader organization we believe that the focus should be on strong, collaborative and complementary teams. Which people to choose, and how many, will be context dependent, and no finite answer could be provided. Thinking carefully about these decisions is therefore important. When initiating the development of a new curriculum, we argue that it is important to explicitly spend time on the development of teams in which the various stakeholders are well represented. Conducting a stakeholder analysis might be a valuable first step to explore and provide insight into the various groups existing.<sup>36</sup> Similar to the leaders, also in the other teams that are established in curriculum change processes, time should be spend on the different worlds, backgrounds, languages, conceptions and ideas about each other and the new curriculum. In this way collaborations could be advanced, and the potentials of collective agency could be much more utilized.



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