GENERAL DISCUSSION
An unhealthy lifestyle among employees has a major financial impact on organizations in terms of productivity loss and sickness absence rates [1-4]. Additionally, the prevalence of an unhealthy lifestyle among the Dutch population is high. Therefore, numerous worksite health promotion programs (WHHP’s) have been developed and studied intensively on their effectiveness over the past two decades [5-11]. Implementation in daily practice, however, of WHP programs has been limited. High quality process or formative evaluations may improve our understanding of factors that can contribute to the implementation process of such programs. However, only a few studies that have evaluated the effectiveness of a WHP program have also systematically evaluated the implementation process [12]. Hence, the focus of this dissertation was to systematically evaluate the implementation process and to gain insight into implementation factors that contribute to the adoption and uptake of a WHP program in practice. A specific focus was put on the use of a 7-step implementation strategy by two participating worksites of different organizations (hereinafter called worksites), as a means to improve the quality of the implementation and effectiveness of a WHP program. The 7-step implementation strategy was aimed to ensure the: 1) creation of solid support, 2) formation of a project structure, 3) performance of a needs assessment, 4) development of tailored evidence-based interventions, 5) adequate implementation of WHP programs, 6) evaluation of the intervention, and 7) the maintenance of the intervention. These steps were the result of a comprehensive survey including more than 1500 WHP programs. This survey suggested that these 7 steps are crucial for the establishment of a successful WHP program [13].

The two main objectives of this thesis were:

1) To identify implementation determinants (i.e. barriers an facilitators) that either hamper or facilitate the implementation of WHP programs focusing on healthy lifestyle changes, and;

2) To assess whether the use of the 7-step strategy contributed to the successful development, implementation and maintenance of a WHP program aimed at stimulating a healthy lifestyle change among employees.

In this general discussion, the main findings of this thesis are presented first. Second, some methodological considerations are addressed. Third, taking the main results into account, an improved 7-step strategy is proposed. Fourth, recommendations and opportunities for future research as well as for daily practice are presented. And finally, this discussion ends with concluding remarks.
Overview of main findings

The main findings of this thesis are presented below by addressing the two main objectives.

To identify implementation determinants (i.e. barriers and facilitators) that either hamper or facilitate the implementation of WHP programs focusing on healthy lifestyle changes. In order to address this question we systematically reviewed the literature on WHP programs focusing on healthy lifestyle changes (chapter 3), and examined implementation factors within a systematically planned implementation evaluation study (chapters 4 through 6). Based on these combined findings we were able to identify key implementation factors at the organizational, strategy and participant level.

At the organizational level, core elements of implementation success were mainly related to management. We observed that (upper) management support and management commitment at the start of the program facilitated program implementation. Active management participation and engagement in the interventions together with employees facilitated participation. Conflicting interests between organizational goals and program goals hampered implementation as it could result in a lack of prioritizing the program.

At strategy level several factors seemed to have a noteworthy impact on the implementation process. The following factors could ensure the success of a WHP program:

- Presence of an external supervisor to make sure that the project remains a priority in light of daily working life and ad hoc tasks;
- Presence of an enthusiastic project leader with sufficient time and skills;
- Formation of a solid project structure that includes employees from all organizational levels;
- Installing a steering committee consisting of managers with decision-making authority;
- Fitting the program to the employee’s needs;
- Focussing on facilitating employees in adopting and maintaining healthy behaviour and making the program voluntary;
- Creating solid support among employees by clear communication about the goals and specific interventions;
- Presence of a detailed project and communication plan that serves as a guide throughout the implementation process;
- Compatibility of the program with the organization and the organizational culture;
- Ensuring good collaboration between all involved stakeholders;
• Ensuring that the program is beneficial compared to the current situation;
• Ensuring that no negative consequences are observed and the company, managers, implementers and participants benefit from participation (i.e., relative advantage);
• Ensuring that implementers have sufficient time, skills, knowledge and competence in order to successfully implement the program.

On the other hand, persistent barriers for the implementation of a WHP program at the strategy level were also identified and included:
• Lack of financial, personnel, and material (e.g., equipment, facilities) resources, or lack of space or facilities;
• Lack of time and a heavy workload of implementers;
• High staff turnover among project leaders;
• Lack of ownership among project members;
• Use of an ad hoc approach; meaning that interventions were developed on the spot, without thoroughly thinking them through;
• Lack of financial transparency.

We also identified several implementation determinants at the level of the participants (i.e. employees). First, it is important that organizations focus on positively influencing the employee’s attitude towards the program implementation, meaning that employees positively support the focus of the program and the fact that their employer offers lifestyle interventions. Especially a positive attitude towards employer involvement in employees’ lifestyle choices is important, since employees can perceive this as private and not something their employer should intervene in. Second, in order to increase participation rates, employees need to perceive social support from colleagues and managers during the implementation phase. Finally, the program should be easily integrated in the daily working live and work tasks of employees. Managers need to facilitate participation when time constraints or high work demands are experienced.

*To assess whether the use of the 7-step strategy contributes to the successful development, implementation and maintenance of a WHP program, with a focus on healthy lifestyle changes*

**Chapter 6** showed that the 7-step strategy was partly used as intended and that moderate strategy adherence was obtained. Both organizations found the 7-step strategy a useful
tool to implement lifestyle interventions in an organization, as it is similar to structural project management and therefore easy to apply. The strategy focused on those elements that contributed to the implementation process and on key issues within an organization. The strategy also focused on those aspects that contribute to participation and satisfaction of employees with the implemented program. This makes the 7-step strategy in theory a valuable strategy to maximize implementation and impact. However, in order to answer this aim it should be noted that both organizations did not actively use the strategy themselves, as they trusted that the external advisor would monitor the process of following all the 7 steps. And, according to the principles of the 7-step strategy, the external advisor intervened or provided guidance when necessary. However, without his guidance the strategy would probably not have been used. In order to increase use of the strategy in future projects it is advisable to improve the implementation of the 7-step strategy (see improved 7-step strategy: lessons learned).

In order to address this second aim of this thesis further, we needed to define success of the 7-step strategy. In this study we struggled with this issue, because no specific outcome variable could be formulated. However, the 7-step strategy was designed to maximize the effectiveness of a WHP program. In order to be effective, evidence-based interventions should be properly implemented and embedded in an organization. So we propose that the 7-step strategy is successful if the following three conditions are met:

1) First, the 7-step strategy should lead to the development and implementation of evidence-based interventions;

2) Second, employees need to adopt and adhere to the implemented interventions, and;

3) Finally, the implemented interventions should be embedded in the organizations health policy.

*Does the 7-step strategy lead to the development and implementation of evidence-based interventions?*

**Chapter 4 and 6** showed that few evidence-based interventions were implemented in both organizations. This was first of all related to one of the most important shortcomings that users in this study stated: the fact that the strategy did not yield sufficient concrete and practical tools or materials to be able to use the strategy as intended. The strategy did not provide enough guidance in the selection of (existing) evidence-based interventions. The lack of a detailed project and communication plan also contributed to the lack of
evidence-based interventions. The lack of a project plan resulted in vague goals and unclear or wrongly timed communication to employees (i.e. to early or after the intervention had been implemented). Second, this thesis showed that the organizations under study primarily paid attention to interventions that were aimed at creating awareness about the consequences of unhealthy lifestyle behaviour and work related stress. Both organizations focused on relatively simple and easily implemented interventions, which did not require active employee participations, but which would potentially generate high visibility within the organization. Even though high visibility is a core element in implementation, this seems like a paradox. Organizations seem to be more interested in “quick wins” and whether or not employees would be satisfied with the intervention, rather than the intervention leading to effects on health. Organizations choose mostly environmental and educational interventions that could be implemented easily at low costs and effort with high visibility as a result, regardless of whether these interventions were proven effective.

In summary, this thesis showed that the first condition for a successful use of the 7-step strategy was only partially met. Improvements to the strategy in terms of practical tools and type of interventions are necessary to achieve successful development and implementation in the future.

*Do employees adopt and adhere to the implemented interventions?*

*Chapter 4* showed high overall reach (96.6%) and participation (75.1% participated in at least one intervention). Overall employees were moderately satisfied with the interventions (6.8 ± 1.1), mainly because they perceived the programme to be a good initiative, which showed that their employer acknowledged the value of employee health and lifestyles. On a more critical note, the long-time interval between some interventions reduced employee’s interest in the WHP program and decreased their satisfaction levels. However, most interventions were perceived to be “pragmatic” and were thought to facilitate employees and to fit their needs. These three aspects can be attributed to the 7-step strategy, specifically steps 2 and 3, as the strategy specifically applies a user-centred approach. Aspects of the strategy that contributed to these high participation rates include performing a needs assessment (step 3) and the fact that employees were part of the project group and were actively involved in the development and implementation process.

Thus, with regard to the second condition we can conclude that the 7-step strategy was indeed successful, since a high reach and participation rates were obtained and this led to the adoption of the program among most employees in the participating worksites.
Is the program embedded in the organizations health policy?

Chapter 4 and 6 revealed that maintenance proved to be a problem, which is also common in other studies [12, 14]. The first key issue was the lack of discussing long-term goals at the beginning of the project. Both organizations started thinking about maintenance when the WHP program was coming to an end. It is expected that an early discussion about possible maintenance strategies would increase continuation of the WHP program. The second key issue was that both organizations based their maintenance decision on their own and their employee’s satisfaction levels (Chapters 4 and 6), instead of focusing on which interventions were hypothesized to have an effect in the long run. This was related to the fact that the organizations did not pay attention to evidence-based interventions at the beginning of the project. A few environmental interventions (e.g., an enlarged bike shed and new building route) and relatively easily implemented interventions (e.g., chair massages and free fruit) were continued. On a more positive note; at one organization the topic ‘vitality of employees’ and subsequent interventions was integrated in yearly performance interviews. One can argue that integrating the topic of vitality in yearly performance interviews has the potential to have great effects, as it is tailored to the individual worker.

Thus, with regard to this third and final condition for the success of the 7-step strategy, we can conclude that the strategy partly led to maintenance. Mainly tools in order to facilitate maintenance of the program in daily practice are currently lacking in the strategy.

Methodological contributions

In our opinion, this thesis contributed to shedding light on a methodological gap in implementation research. Chapter 3 showed that process evaluations are not systematically performed alongside effectiveness studies and that they are generally rated as being of ‘poor’ to ‘average’ quality. The main reason for this classification was that, in most cases, no conceptual frameworks were used to systematically guide the implementation process. Furthermore, current frameworks do not have a specific focus on implementation factors. Consequently, we highlighted the need for future research with regard to the identification of implementation determinants. This is why we proposed a new conceptual framework for conducting process or formative evaluations in Chapter 2. The proposed conceptual framework was developed, based on literature on process evaluations. We combined three known and frequently used frameworks to capture every aspect of the adoption, implementation and maintenance process, as well as the influence of implementation determinants on the phases of the implementation process. Until now, no such framework
has been developed by which the implementation process can be studied systematically. The final framework as proposed and applied in this thesis consists of eight components: 1) context, 2) recruitment, 3) reach, 4) dose delivered, 5) dose received, 6) fidelity, 7) satisfaction and 8) maintenance. Each of these components measures a different aspect of the adoption, implementation and continuation of a program. Under the component ‘context’, the implementation determinants and their positive or negative influence on the implementation process were measured. Another positive feature of using the proposed framework is that three different levels are included for each component. These are: the organizational level, the implementer level and the employee level. In this way, we were able to identify successful components and implementation determinants at each level, which is beneficial for future implementation. The proposed conceptual framework greatly facilitated the systematic evaluation of the implementation process in this study. Without this framework we would not have been able to gain insight into the natural process of implementation in daily practice and to assess the use and adherence to the 7-step strategy. Therefore we strongly recommend our framework for use in future research initiatives. Moreover, the framework has already been used by Hoekstra et al. (2014) [15].

**Methodological issues**

Some methodological issues should be considered regarding the strengths and limitations of the BRAVO@Work study.

To our knowledge, the BRAVO@Work study is one of the first studies that systematically monitored and evaluated the natural course of the implementation process by means of a real-time formative evaluation within a controlled trial. We measured our process evaluation components prior, during and post implementation, whereas until now implementation studies only have performed post-hoc evaluations. In order to gain a thorough insight into the implementation process and the use of the 7-step strategy, we applied data triangulation (i.e. a combination of quantitative and qualitative methods). Data triangulation enables researchers to look for patterns in the collected data in order to develop an overall interpretation, which includes multiple views on the implementation process [16, 17]. The qualitative and quantitative data complemented each other and created a rich dataset for the interpretation of the natural course of implementation. The results of this study can be regarded as innovative and provide valuable information about the implementation process. This improves the translation from research into practice. Another strength of this study is the stringent focus on capturing and monitoring the implementation process by
an embedded scientist. Combined with the fact that the worksites themselves were in the lead, we were able to evaluate the use of the 7-step strategy, as well as the dynamic process of implementation of the BRAVO-interventions in real-world circumstances [18]. This is a similar approach as used in action research in which the purpose is to solve a particular problem and to produce guidelines for best practice. As Peter Reason and Hilary Bradbury say: “...it seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.” [19, 20]. The main difference with our approach is that we did not include a proper feedback loop from the researchers to the worksites. Instead the external advisor was responsible for providing real-time feedback to the project groups, which they could use to alter their implementation plan, based on previous experience. Mainly because we were interested to see how an organization would cope with using the strategy in daily practice without involvement of the scientific world. This is also the reason that we did not apply the traditional randomized controlled trial (RCT) design. The RCT is seen as the golden standard and the preferred design for investigating the effectiveness of an intervention [21, 22]. However, the applicability of the results of a RCT in daily practice are questionable. The design aspects that contribute to the high external validity (e.g. well-defined exclusion criteria) of a RCT may in real life hamper the generalizability of results to other organizations [18, 22]. In contrast, the use of a pragmatic design facilitated the generalizability of results (i.e. enhances the external validity) to other types of organizations than the ones in this study. Since we were interested in the implementation process in daily practice, the choice was made to apply a quasi-experimental design with elements of action research.

Some limitations should also be mentioned. Both intervention worksites were active in the health sector. We hypothesize that this implies that participants generally had a higher awareness of the importance of a healthy lifestyle compared to the average Dutch employee. Furthermore, we faced the problem that implementation science is a relatively new field. Hence, psychometrically validated instruments measuring the process of implementation are scarce and are not frequently used. This is largely the result of the challenging nature of the real world setting in which these studies often take place [23-25]. As each setting and intervention is unique, to our knowledge, no valid process evaluation questionnaire was available for use in the BRAVO@Work study. In order to ensure the quality of our outcomes we did incorporate an adapted version of a newly proposed Dutch instrument by Fleuren et al. 2014 for measuring implementation determinants [26, 27]. Finally, the main focus on
the natural implementation process hampered the ability to obtain sufficient data regarding the effectiveness of implemented programs. Since both worksites were in control, they were involved in the development of the questionnaire. Consequently we needed to make concessions regarding length and content of the questionnaire. Additionally, both worksites choose not to conduct physical examinations.

**Improved 7-step strategy: lessons learned**

Taking the results of this thesis into account, the 7-step strategy as presented in Chapter 2 of this thesis needs to be reconsidered. Chapter 6 showed that both worksites experienced difficulties in executing each step as intended. Therefore, in this section of the general discussion, improvements to the overall strategy and to each of the seven steps are presented so it can be used most effectively in future implementation of WHHP’s.

**Improvements to the overall strategy**

The 7 steps as defined in the BRAVO@Work study remain similar, because project members stated that the steps were logical. But in order to increase the performance of the strategy and to enhance implementation success four main improvements to the overall strategy can be made, namely 1) including practical tools, 2) including a suggested timeline, 3) including a questionnaire to gain insight into implementation determinants, and 4) stimulating an ongoing cyclic process of sustainable employability.

Firstly, the strategy needs to contain more (practical) materials to substantiate each step. Our suggested improvements regarding practical materials are included in the improvements of each step below.

Secondly, the strategy needs to be optimized by specifying a timeline for successfully executing each of the 7 steps in order to manage expectations. Based on the insights obtained in Chapter 6 it is reasonable to assume that steps 1 through 4 should take on average 6 months. Steps 5 through 7 should take on average 12 months in which implementation, evaluation and maintenance should be integrated. Figure 1 gives an overview of the proposed timeline.

Thirdly, the strategy did not explicitly account for all modifiable implementation determinants that could have influenced the development, implementation and maintenance process. Different barriers and facilitators can apply to different organizations. For this purpose the Dutch questionnaire MIDI developed by Fleuren and colleagues (2014) could be used at the initiation of the project [26, 27]. The MIDI questionnaire can be used
to identify relevant implementation determinants (i.e., barriers and facilitators). In this way, the project group can anticipate the identified barriers and facilitators applicable to their organization, eliminate predictable obstacles and also reinforce already existing facilitators.

Finally, this thesis showed that both worksites applied the 7-step strategy as a single project instead of a tool that can be used to stimulate a continuous quality circle to keep improving and to structurally embed an organizations health policy. Every organization is dynamic and changes over time. By regularly (e.g. annually) repeating steps 3 through 6, the implemented policy can be kept up to date. This is also important in light of a letter of the Dutch Ministry of Social Affairs and Employment (i.e. “Ministerie van Sociale Zaken en Werkgelegenheid”) regarding future work related care in January 2015 [28]. In this letter, the ministry states the following: “Prevention and sustainable employability are important objectives for work related care. Good work related care is aimed at preserving, restoring and improving the health and sustainable employability of workers. Prevention and improving workers sustainable employability are the joint responsibility of employer and employee.” [28]. In this letter, the ministry included the advice given by the Dutch Social Economic Council (i.e. “Sociaal EconomischeRaad (SER)”) named “Better care for workers” in September 2014 [29]. They stated that prevention and working on sustainable employability are the core of work related care. A future system should (more than is currently the case) focus on preventing health problems and absenteeism. Not only among employees but also among the Dutch working population. This will result in social cost savings according to the council [29]. The improved 7-step strategy could help organizations to work on prevention and sustainable employability of their employees.

![Figure 1. Suggested time line](image-url)
**Improved step 1: continuously creating solid support at all organizational levels**

This thesis showed that, in the current form, the 7-step strategy specifically addresses the importance of creating solid support at the beginning of the development of the WHP program. The strategy states that employees need to be part of the project structure and that upper management needs to ensure their support by signing a letter of intent and reserving budgets. Given the results of this thesis, it should be emphasized that creating solid support should be an ongoing focal point and take place on all organizational levels (upper, middle and lower management and employee).

Three additional approaches should be used to ensure ongoing support on all organizational levels. First, in line with the results of the review by Durlak and Dupre (2008), appointing ambassadors for each department is a successful strategy in maintaining support among employees. Ambassadors are employees with a positive attitude, who are actively trying to enthuse their colleagues about the project and who have an intrinsic motivation for the programs’ subject. They are not necessarily part of the project group, but get detailed briefings on the current status of the program and the interventions [30]. The second approach is ongoing and clear communication. Durlak and Dupre (2008) also showed that employees feel more included and have higher levels of ownership when a transparent and personal communication approach was adopted [30]. This can be accomplished by visiting team meetings at the beginning of the program. In doing so, employees know what to expect and critical notes, questions and ambiguities can be clarified. As a bonus this facilitates a positive employee attitude towards the program, which is important as this enhanced program participation. Throughout the project clear communication on both successes and failures of the project is key [30]. This could be communicated in a regular feature on the organizations intranet or in the staff magazine and complements the personal approach. The third approach is specifying the role of team managers (i.e. lower management). As became clear in this thesis, team leader involvement leads to a direct impact on employees’ behavior. Support can be ensured by actively and timely informing lower and middle management on the intervention content and their role in program implementation. This can be accomplished by making the WHP a permanent item on the agenda of management meetings.
Improved step 2: formation of a project structure with external advisor

The 7-step strategy specifies the importance of forming a steering committee, a project group and an internal project leader. However, this thesis showed that an external advisor with experience in applying the 7-step strategy is an essential element within the project structure. The presence of the advisor in this study prevented premature termination of the program. In light of daily activities in an organization, the project members and internal project leader experienced difficulties in prioritizing the program. The combination of an external advisor and internal project leader with a set amount of hours a week to spend on the program proved to be essential to stay on track.

Improved step 3: needs assessment and identification of organizational culture

A proper needs assessment questionnaire needs to be included in step 3, which gives insight into both A) the current health and lifestyle status of the employees (e.g. a lifestyle mental health and physical health questionnaire), as well as B) the needs and wishes of the employees. This combination is essential. Chapter 5 of this thesis showed that when a program fits the employee’s needs, they have a more positive attitude towards the program, which enhances employee participation. However, from an organizational perspective one wants to intervene on those behaviors that will generate the biggest impact. Hence a combination of A and B is vital.

During this third step it is also important to assess the organizational culture as implementation is facilitated when the WHP program fits the culture and core values of an organization [30-33]. Organizational culture is a complex phenomenon. Weiner et al. (2009 and 2011) and Klein and Sorra (1996) showed that there are two aspects that influence the implementation of an intervention: a) the fit of the program with the organizational context and; b) the organizational climate [31, 34, 35]. Weiner et al. (2011) described the fit with the organizational context as how well the intervention is tailored to the wishes and needs of the organization and if the intervention is in line with company values [34]. The second aspect, organizational climate, is ‘the extent to which intended users perceive that innovation is expected, supported and rewarded’ [35]. The latter can influence the implementation through policy, politics and general organizational factors [34]. Both aspects are intertwined within organizational culture as defined by Schein (1985): ‘A pattern of shared basic assumptions that was learned by a group, as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, think and feel in
relation to those problems.’ [36]. Durlak and Dupre (2008) and Weiner et al. (2011) showed that organizational culture and company values determine the implementation climate [30, 34].

The Competing Values Framework (CVF) developed by Cameron and Quinn is a useful framework for assessing organizational culture. This framework is commonly used to determine the existing organizational culture and includes the validated and reliable Organizational Culture Assessment Instrument (OCAI) [37-39]. It distinguishes four dominant organizational cultures. By identifying the organizational culture before the start of the program, implementers can identify and anticipate on possible obstacles beforehand and act upon them.

**Improved step 4 and 5: development and implementation of interventions**

The key to successful implementation (step 5) is a well-developed intervention program (step 4) [12, 30]. However, in the current form, step 4 mainly lacks practical tools to help organizations develop an evidence-based program that fits both the organizations and employee’s needs. Chapter 4 and 6 of this thesis showed that a project plan, which focuses on the bigger picture, as well as details regarding interventions facilitated a structured implementation. For example, one of the worksites did not include a detailed intervention template. As a result they implemented ‘ad hoc’ interventions that did not fit the needs of employees nor were hypothesized to be effective in changing behavior. An empty project plan format must therefore be included in the strategy which contains the following aspects: desired changes and project goals, an intervention template, a timeline, a communication plan, a budget plan, a maintenance plan and a list of persons involved, including their tasks and responsibilities. In addition to this format, a list of evidence based interventions needs to be included in step 4 to make sure organizations do not only choose relatively simple interventions with an ‘ad hoc’ approach, but also to achieve a focus on multi-component interventions that have an effect in the long run. This list needs to include a comprehensible intervention description along with the dosage of the intervention. In this thesis we focussed on interventions to change lifestyle behaviour. However, for an organizations health policy it is also important to focus on other relevant themes like employability, safety, work environment, stress and ergonomics.
Improved step 6: Integrative evaluation

The 7-step strategy states that step 6, the evaluation, consists of an integrative evaluation as well as an overall process and effect evaluation. The results of this thesis showed that the integrative evaluation was perceived as facilitating. It was part of the natural process of the project meetings and led to adjustments to the project plan when necessary, similar as in action research [19, 20]. However, both organizations relied on the process and effect evaluation of the researchers. In light of the results of this thesis it is questionable whether extensive process and effect evaluations are necessary for good corporate HR services. Chapter 4 showed that both worksites based their maintenance decision on satisfaction and awareness levels among employees, without looking at the effects. Therefore we recommend that organizations use their employee satisfaction survey or periodic medical examination to gain insight into behavior change. Additionally, short process evaluation questionnaires for employees regarding dosage and satisfaction for each intervention are beneficial and easily conducted by the organizations themselves.

Improved step 7: Embedding WHP in the organizations health policy

At the organizational level, maintenance covers the extent to which a program becomes institutionalized or part of the routine practices of an organization. Step 7 currently lacks a specific strategy that organizations can use to ensure embedding of WHP in the organizational health policy. This is essential in order to enhance long-term effectiveness [40]. Unfortunately, to our knowledge, there are no studies that investigated the best approach for maintenance of a WHP program, while the results of our study call for practical tips and tools to ensure maintenance of a WHP program in daily practice. Therefore, based on the results of this thesis and our practical experience we suggest that organizations should focus on three aspects. First, it is important that more than one employee or manager in the organization is made responsible for the organizational health policy and overall vitality of employees. At least one person from the human resource department with enthusiasm and knowledge about the topic should be actively involved. By making it a joint responsibility with (an)other coworker(s) it is less likely that the WHP will end when one of the responsible employees drops out. Second, the health policy should be a permanent item on the agenda of management meetings. It is hypothesized that this will make it more likely that it will become part of mentality and culture throughout the organization. Finally, regularly (e.g. annually) repeating steps 3 through 6 can keep the health policy up to date would ensure that support for the policy on all organization levels remains stable.
Recommendations and implications for research

There are still a lot of challenges and questions in the field of implementation research and WHP that should be answered. More knowledge is needed regarding the following:

- This thesis has clearly demonstrated the need for a systematic approach for process evaluations as a way of improving WHP program implementation. Until now, process evaluations are in general of low to average quality and this needs to be improved, because good quality evaluations will enable researchers to identify effective intervention components. In order to set a first step in this direction, we suggest that future process evaluations need to apply the framework of Wierenga et al. 2012 as proposed in Chapter 2. One of the main reasons for this recommendation is that this framework explicitly takes implementation determinants into account. It also provides a detailed operationalization of each process component at three different organizational levels, which is lacking in other frameworks.

- In order to successfully conduct process and formative evaluations, questionnaires with good psychometric properties should be developed for collecting such data. An important consideration in this development process should be to minimize the burden that data collection places on study participants. This will help to obtain a higher response rate and thus a more complete view of the process components and the implementation process.

- Applying a mixed methods approach proved to be very useful. Detailed insight into implementation determinants and into the development and implementation process was obtained. In this study interviews were performed prior, during and after implementation. This comprehensive and time consuming approach was relevant for this thesis as this was one of the first studies that primarily focused on implementation and its determinants. However, for future research, interviews at the end of the project should be sufficient if researchers are present during project meetings. Mainly because the interviews prior and during did not generate many new insights on top of the insights we gathered by attending project meetings. The project meetings give solid information, which could also be used to timely adjust aspects of the implementation strategy. Additionally, the interviews are big burden for participating project members.

- For studies that focus on implementation, an embedded scientist should be part of the study design. The presence of an embedded scientist allowed for extensive real-time monitoring. This gave insight into the direct influence of barriers hindering
the implementation process. Hence, a better understanding of the course of the program was obtained.

- Newly designed interventions should be co-developed with organizations. The action research approach is very suitable for this. This approach ensures fitting the program with the organizational needs, as employees are involved. But it also allows researchers to gain insight into the key elements of the intervention program. Since implementation takes place in the real-world setting it is expected that the generalizability of the results is greater.

- This study showed that simply stating that organizations should focus on maintenance did not lead to the desired effect. Consequently, future research in the field of WHP should focus on identifying effective strategies to ensure embedding of programs in an organizations health policy, in order to enhance long-term effectiveness.

**Recommendations and implications for practice**

During this course of this thesis, prevention and sustainable employability has been gaining more and more interest in organizations and Dutch society. Politics have given it more attention. In 2015 it was officially stated that prevention and working on sustainable employability are the core of work related care and a joint responsibility of employer and worker [28, 29]. Since this thesis focused on implementation of a WHP program in daily practice it is only logical that we identified recommendations for organizations and practitioners.

For successful implementation of a WHP program in daily practice, it is important that each initiative is placed under a single umbrella concept focusing on sustainable employability. The improved 7-step strategy can be used to determine the contents of the organizations approach towards sustainable employability. This is vital for successful implementation as the strategy ensures fitting the interventions to the needs and wishes of both the organization and its employees. Additionally, the strategy accounts for modifiable implementation determinants, which can either hinder or facilitate the implementation process. Appointing an external advisor is strongly recommended. He or she can make sure that the program remains a priority in light of daily activities and provides guidance through each step. Additionally, this thesis showed that organizations have the tendency to choose relatively simple and easy to implement interventions. However, in order to ensure long-term effects it is advisable that organizations include known effective interventions. The
external advisor can play an important role in ensuring this. The external advisor (if he or she has a scientific background) can also be given the role of embedded scientist. This allows for monitoring, proper evaluations and adjustments to the implementation when necessary, which improves implementation success. Finally, in order to ensure long-term effects the vitality management needs to become part of an organizations health and safety policy.

**Concluding remarks**

This thesis showed that although the use of the 7-step strategy helps overcome implementation determinants, the strategy only partly led to the successful development, implementation and maintenance of a WHP program. The strategy was not able to induce the implementation and maintenance of evidence-based interventions, which could, in theory, have led to favorable effects on several lifestyle behaviors. The findings as described above make clear that, although the 7-step strategy was perceived as a useful tool to systematically implement lifestyle interventions in an organization, improvements need to be made before nationwide use can be recommended.
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