MASTER THESIS

Health Sciences

The experience with and the usability of the Perssilaa online exercise program – a study in prefrail older adults

Fiona Uelderink
S1128574

BMS/HS
HSM

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UNIVERSITY OF TWENTE.

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Abstract

Background: The share of elderly in the population is becoming bigger, which brings increasing health care costs, partly due to the physical limitations of the older adults. The aim of this research was to gain insight in the experiences of older adults with the Perssilaa online exercise program.

Methods/ Design: During 16 weeks a study was done with a research group of fifteen prefrail older adults. They used the Perssilaa online exercise program; an adjustable exercise program of seventeen exercises per session, based on the Otago home exercise program. The program contains five levels of increasing difficulty. Adherence is calculated by analysis of the saved logbook data of the participants. Participants have completed the UTAUT and SUS questionnaire for their acceptance and sustainability of the technology. Interviews with the participants were conducted to gather more details about their experiences with the program.

Results: The overall experience of the Perssilaa home exercise program is rated good by most of the respondents. A few adjustments should be made to improve the program and make it more motivating, for example by adding a gaming aspect to the program. The participants trained 2.34 times a week on average, with an average duration of 23.5 minutes. There were four drop-outs.

Conclusion: The experiences of the prefrail elderly with the Perssilaa online exercise program were good and the program was easy to use for the older participants. A recommendation would be to improve and expand the program to make it more motivating, and to promote it more widely. Further research needs to be done to the adjusted program in a bigger research population.

Introduction

People live longer and longer in welfare countries, which increases the share of elderly in the population. During the physical process of aging, the elderly can develop frailty, which can lead to a loss in physical function (1, 2). Frailty is the clinical condition that precedes the occurrence of disability, which means the loss of independence in daily activities (3). The prevalence of frailty is 10.7% of the population community-dwelling adults aged 65 and older, and 9.9% for physical frailty (4). There are five indicators of physical functioning for frailty; unintentional weight loss, exhaustion, slow walking speed, low grip strength, and low physical activity(5). These indicators are related to each other.

With a decrease in physical functions, elderly become more dependent of others in performing activities of daily living (ADL) (6). Approximately 18% of persons of 65 years and older are dependent in one or more activities of daily life (6). Another limitation of the aging population is the increasingly expensive health care because of the age-related diseases and disabilities (7). Keeping people healthy when aging requires proactive management of resources and self-management of the elderly (8, 9). It is therefore important to make the geriatric care of old people more cost effective for funding the healthcare systems (9, 10).

Healthcare is currently organized in a reactive form. This means that people receive care when they detect a problem in their health status, while it would be better to organize healthcare in a proactive and personalized way. By receiving healthcare in a proactive way, health problems could be prevented, thereby lowering the pressure on health care. A way to provide healthcare in a proactive way is the use of exercise programs to improve the physical functioning of older adults. Different studies (11-15) focusing on exercise programs for older adults (60 years and over) showed positive results of exercise programs in relation to physical activity. These studies showed an increased balance, flexibility, gait, strength and coordination (12-15) and a slowdown of the occurrence of disability (11). Physical exercise programs not only increased the physical functioning, but also resulted in frailty reduction (16). A telemedicine intervention, defined as the use of information technology to monitor patients at a distance (17), can gain a lot of profit in healthcare. A telemedicine intervention focusing on physical activity can improve the health status of prefrail older adults in an accessible and affordable way. It can help people living in rural areas, can save time from the citizens and from the professionals, and it can therefore be more cost effective than the usual care.

Home exercise programs are developed to improve the physical activity for elderly people by letting them exercise in their home environment. These programs aim to improve the self-management of the elderly and to make the geriatric care more cost effective. These home based exercise programs are all based on different programs or methods (18-22). The exercises of these programs for use in

home setting are provided by DVDs, tablet PCs, or descriptions with pictures. Some of the programs log the data online, with the use of a motion sensor or a logbook, while other programs collect their data by using a professional like a physiotherapist to measure the physical activity of the participants. Only two of these programs provide feedback to the patients. This provided feedback is based on the activity level logged with the motion sensor(20), and on self-reported daily activity logs of the patients(18). No feedback is provided by any of these exercise programs on the performance of the exercises.

While a telemedicine intervention focusing on physical activity can help people, the question arises if older adults are also able to work with technology. M.F. Romano (2015) reported that in a studied population of people 50 years and over from different countries only 31% uses the Web. This could be a limitation in the development and implementation of telemedicine in healthcare. The study also showed that the elderly who overcome the barrier of ICT and learned how to work with the technology, started to appreciate new technologies (23). Research is needed to find out if older adults can cope well enough with technology to be able to use home exercise programs.

Not much interventions focus on preventing health problems, but one that does focus on prevention, is the Perssilaa online platform (24). Perssilaa is the abbreviation for Personalized ICT Supported Services for Independent Living and Active Aging. The Perssilaa online platform consists of a telemedicine service being a movement intervention to prevent and to cure the elderly in the home setting by completing a specific trainings program. The trainings program is personalized for each participant, depending on their needs and physical limitations. Instead of training with professionals, the participant receives an instruction about the program, and can receive support or help with the exercises once a week, saving costs and making it accessible.

The main question of this research is 'What is the experience with and the usability of the Perssilaa online exercise program in a study with prefrail elderly?' This question will be answered by the sub-questions; What is the ease of use of the Perssilaa online program? What are the advantages for the elderly of training with the Perssilaa program compared with continuing their usual activities and what are the barriers? Which problems occur by using the Perssilaa online exercise program? What is the adherence to the Perssilaa online exercise program? What are the reasons (not) to train at the Perssilaa exercise point?

Method

Procedure and participants

Inclusion criteria for participants who were asked to take part in the online exercise program were: 1) age ≥ 65 years ; 2) and living independently; 3) having a computer/tablet with internet at home; 4) being physically prefrail. To define participants as prefrail, the Short-Form (SF) 36 Physical

Functioning Scale was used. Participants that scored ≤ 61 on the SF-36 questionnaire were classified as physically prefrail and invited to take part in the program.

Participants who were willing to participate were invited for an instruction meeting, where they signed informed consent to participate and were trained with the program. At the end they received their accounts with which they could start training at home.

Study design

A qualitative exploratory research of sixteen weeks was performed. The research focused on the experiences of the older adults about the physical part of the Perssilaa platform and the usability of this platform. This research is conducted on behalf of the Roessingh Research and Development, for the European Perssilaa Project.

The Intervention

The physical part of the Perssilaa platform provided a set of exercises based on the Otago home exercise program for prefrail elderly. These exercises focused on the strength, balance and flexibility of the elderly.
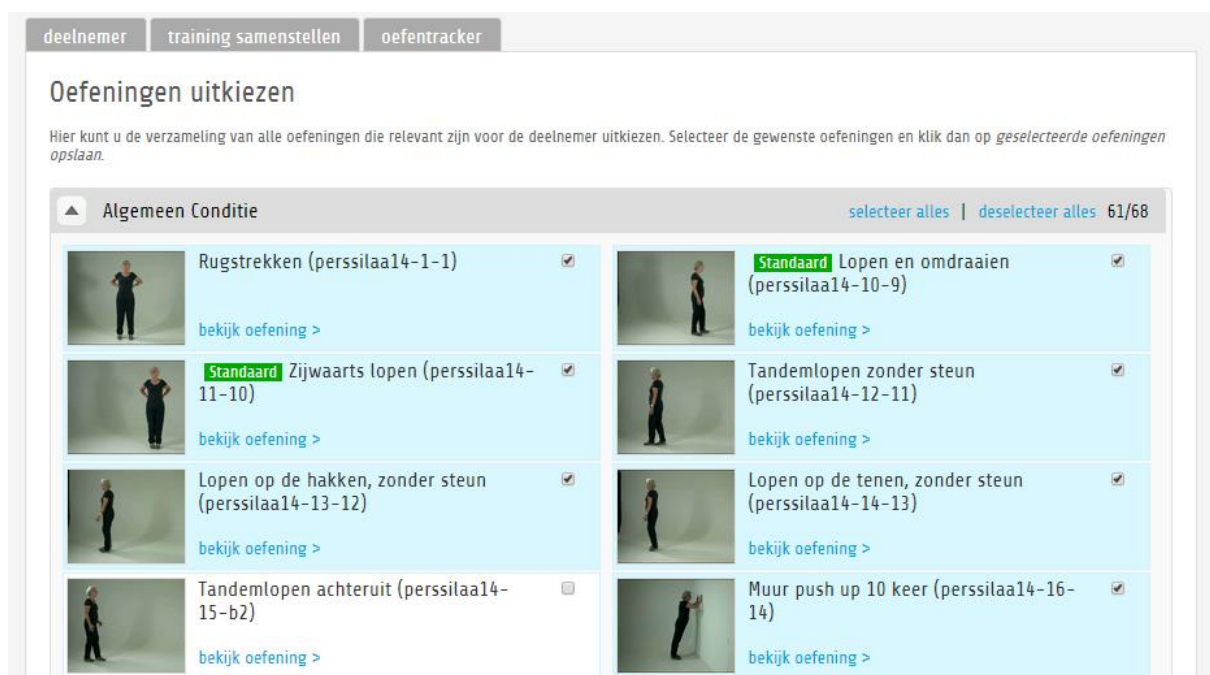

Figure 1; The adjustable Perssilaa online exercise program

This online exercise program was adjustable to the needs of the participants. They had the opportunity to question the caregivers for more explanations and to receive feedback from them on the performed exercises, which contained the adjustment of the exercises to their physical limitations inter alia. The exercise program consisted of five levels increasing in difficulty. Every level contained a number of exercises, of which nine exercises (three in each category), four warming-up and four cooling-down

exercises were randomly provided each time the participant logged in. After a number of training sessions per level (n≥9), the participant was asked if he wanted to go to the next level or wanted to stay in this level. The last level, level five, was the maintenance phase. The participants could continue their training within this level, but would not receive new exercises. The training module could be used by the elderly independently, in a safe and personalized manner. The aim of the intervention was to make the older adults exercise regularly. They were advised to train three times a week for 30 minutes.

This training program could be exerted in two settings (24). The first setting was the home setting. The older adults could use the Perssilaa platform in their home environment by using their own technology. The second setting was the Perssilaa point; where the older adults could train with the platform while receiving support of students in physiotherapy. They could help the older adults with the exercises and could offer support and explanations when exercises were performed incorrectly, or when the health status didn't allow the elder person to perform all the exercises.

Data collection

Adherence
The results of the training with the Perssilaa program were recorded in an online logbook. This logbook contained data about the frequency of training for each participant (e.g. how many times a week), the moments of training (e.g. on which part of the day and on which days), the duration (e.g. how many minutes for each trainings session), the training level of the participants and how many sessions they performed per level, and which exercises were performed, as well as comments and questions about the exercises or the program.

Acceptance and satisfaction
To gain insight in the experiences of the older adults with the Perssilaa home exercise program, the participants were asked to complete the UTAUT and the SUS questionnaire. These two questionnaires were chosen because they gain information about the acceptance of the program (UTAUT) and the satisfaction with the program (SUS). The Unified Theory of Acceptance and Use of Technology (UTAUT) questionnaire consisted of 30 questions about four items; the performance expectancy, the effort expectancy, the attitude toward using technology and the social influence (25). For satisfaction with the exercise program the System Usability Scale (SUS) questionnaire was used. This questionnaire included ten items which provide a global view of subjective assessment of system's usability. The results of these questionnaires were on a range of one to seven (UTAUT) and one to five (SUS), but some questions were positive and others were negative. These results were all rescaled to a positive range of one to seven (UTAUT) and one to five (SUS). They higher the scores on the UTAUT questionnaires, the better the acceptation of the service. A score above 3.4 on the SUS meant a satisfaction above average and a score below 3.4 on the SUS questionnaire meant a

satisfaction below average (26, 27). These results were analysed, to get an overall indication about the acceptance of and satisfaction with the Perssilaa online exercise program.

Experiences

Besides completing the questionnaires the participants in this research were asked to take part in interviews. These interviews were executed based on the UTAUT questionnaire, in response to the research questions and the available literature about home exercise programs. The interview consisted of questions about the experiences with the Perssilaa online exercise program to give the participants the opportunity to provide their opinion on different parts of the program, to explain their rating of the program and to ask questions and give suggestions for improvement. Both participants and drop-outs of the Perssilaa online exercise program were invited for the interviews.

The interviews were held in a structured form and were conducted by three different interviewers. The interview script for the users of the Perssilaa online exercise program consisted of questions about their experiences with the program, their motivation for training with the program, their reasons to train at home or at the Perssilaa point, their skills necessary to participate in the program, the ease of use of the program, and suggestions, comments, or questions. An additional question about the reason they stopped training with the program was added to the script for the drop-outs of this study.

Analysis

Logbook data and questionnaires

The results of the online platform data and the results of the questionnaires were analysed in SPSS and in Excel. Graphs were made in excel to show the moments of training and the frequency of training (per participant, per level, and per week). For these graphics and calculations, data of all the participants was used, including the drop-outs. For the average number of sessions per level only the completed levels of the drop-outs were included. In SPSS, descriptive analysis was performed to summarize the results of the adherence, satisfaction and acceptation of the Perssilaa online exercise program. During the descriptive analysis, the average values of the UTAUT and the SUS were calculated. Tables show the results of the UTAUT and SUS questionnaire. The exercise adherence rate of the program was calculated by dividing the number of training sessions performed per week by the number of trainings sessions per week prescribed. The drop-out rate is calculated by dividing the number of drop-outs by the number of participants that started training with the Perssilaa online exercise program.

Interviews

During the interviews sound recording material was used to collect the data with best result. For the sound recording and use of the data of the interviews permission was asked from the

participants at the start of the interview. The results of the interviews were anonymous and the use of data was confidential.

The sound material of the interviews was transcribed word for word literally, by using the software Express Scribe, free available on the internet. In each paragraph of the transcript a new question of the interview was discussed, so that the questions can be distinguished easily from one another. Analysis of these transcripts is done by using the software Atlas.ti, free accessible by the software manager of the University of Twente. The interviews are coded one by one, by using an custom designed coding system. Because the interview topics were set up in response to the research questions, no existing interview scheme was used, so also no existing coding scheme could be used. Deductive coding was used to code the transcripts. After setting up the interview topics and interviewing the participants, a list of categories and themes was made to code the interviews. Coding topics were made by one interviewer, based on the interview questions and possible answers. For example, the question 'What do you think of the difficulty of the exercises (at every level)?' of the interview, was assigned to the code 'difficulty of exercises'. Small text fragments of the transcripts were selected per topic and were assigned to a predetermined code. All codes that are similar or correspond to each other were assigned to one category or theme. This code is a short sentence which shows what the text fragment is about. Within these categories the fragments were sometimes divided into subcategories. Some questions needed to be answered by the respondents as good, bad, or a combination of both, or another rating(appendix 1), after which they could explain these experiences. The possible answers of the participants are the subcategories of the main code, in the example about the difficulty of exercises: 'good/ too easy/ too difficult'. Appendix 1 showed the coding scheme of the interview transcripts.

All transcripts were re-read by the researcher to ensure that the categories and themes were correctly assigned in the analysis and all the experiences were interpreted in the right way. When all the categories and themes were mapped, the results were analysed. The codes were structured and grouped to discover connections and similarities between them. By grouping the codes, rates of some topics were also counted. The results of this analysis are captured in tables and text.

Results

Patient characteristics

The research population consisted of fifteen prefrail elderly that used the physical module in their home situation. The research population consisted of five men and ten women, with an average age of 69.3 years, see table 1. Eleven prefrail elderly were interviewed, and twelve prefrail elderly took part in the questionnaires. All fifteen participants took part in at least one of the two methods of data collection (interviews and/or questionnaires).

Table 1; Background characteristics

Background characteristics	
Age; mean (SD)	69.3 (4.15)
Gender (n)	
Men	5
Women	10
Interviews (n)	11
Questionnaires (n)	12

Training

Figure 2 shows that the prefrail elderly prefer to train on weekdays compared to weekend days. They prefer to train in the morning or in the afternoon, rather than in the evening (see figure 3).
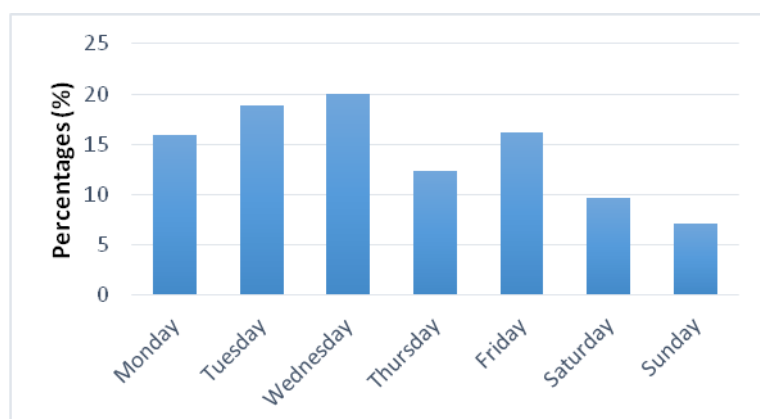

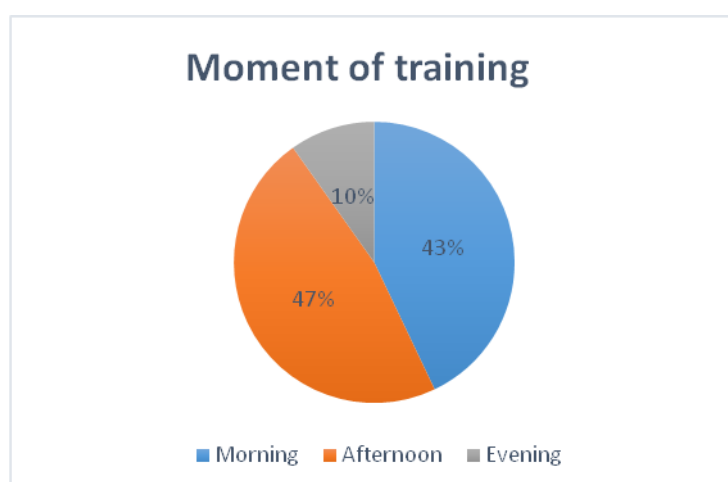*Figure 2; Percentage (%) of elderly training on days of the week (n=15)*

Figure 3; Percentage (%) of elderly training per part of the day (n=15)

Eleven of the fifteen participants have continued training till the end of the testing time, making the drop-out rate 26.7%. Eight of the eleven participants that took place in the interviews experienced health problems. Health problems were the cause for three participants to stop their training with the Perssilaa online exercise program. Another reason to quit the program was a bad satisfaction with (training with) the program (n=2). One participant experienced the program as too slow, and the other participant experienced too much stress by using the program while feeling the pressure of using the program regularly.

The average number of training sessions per week is 2.34 (+/-0.90) (see figure 3), with an average duration of 23.5 minutes per session. This makes the average exercise adherence 78%. Apart from the drop-outs, the average number of sessions per week doesn't vary much (1.83 – 2.69).
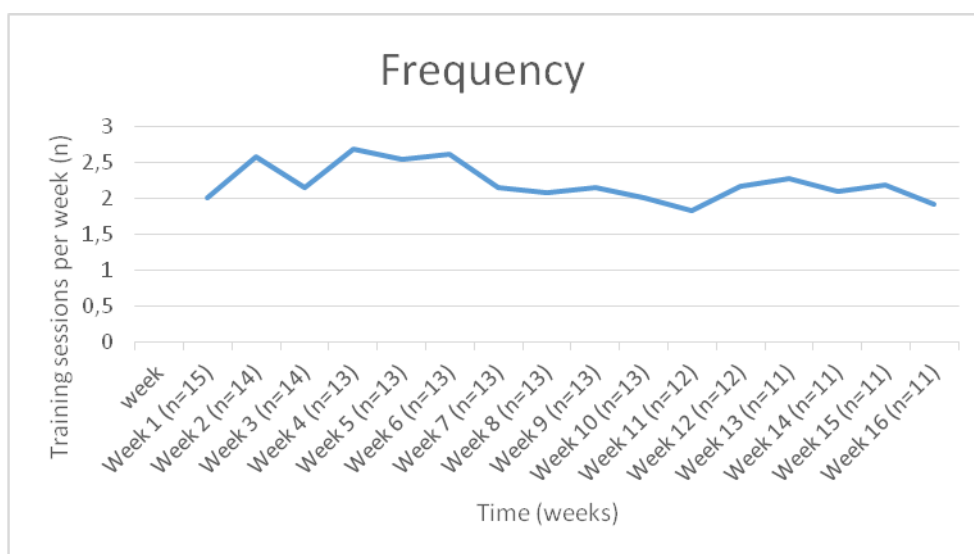

Figure 4; Average number of training sessions per week per participant
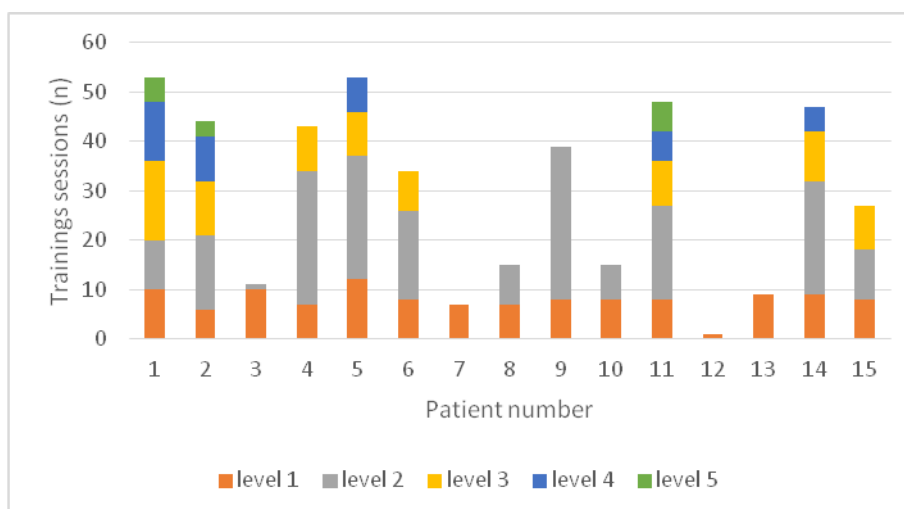

Figure 5; Total number of training sessions per participant

There is a lot of variation in the number of training sessions per participant, as shown in figure 5. Variation also occurs in the number of training sessions per level. Almost all participants have trained most sessions in level two, with an average of 17.7 sessions. Only three of the participants reached the maintenance phase in sixteen weeks. The least time is spent in level four, with an average of 6.7 sessions. In level one the average duration was 8.3 session and 10.3 sessions for level three.

Experiences

A few participants needed help with the computer, the program or the exercises (see table 2). One participant asked a few questions by using the questions option in the program, and the other participant went to the Perssilaa exercise point for some help with performing the exercises. The problems participants had with the program were for example: unable to find the program on the internet, or problems with running the program in their current internet browser. The participant who experienced problems with the computer, suffered from a crashed computer.

Table 2; Help needed

Help needed		
	Yes	No
By exercises (n)	2	9
With the computer (n)	1	10
With the program (n)	4	7

Most participants liked to train at home because it is easy and pleasant to train at home, they don't have to make an appointment but can train when they have time and they don't need to go anywhere. They didn't like the idea of training at the Perssilaa exercise point because they didn't want to train in a busy environment, they didn't want to have the obligation to practice on a given moment, they couldn't train on the only day that the Perssilaa exercise point is open, they didn't want to drive to the exercise point if they can also do it at home or they didn't like the given support at the exercise point.

Ease of use

The majority of the participants rated the aspects of the Perssilaa online exercise program as good (see table 3). The ease of use of the Perssilaa online exercise program is rated good by eight of the eleven participants of the program. They experienced the program as simple, clear, and raft, it works perfectly, the movies were good for support, and they liked the possibility to have contact and receive feedback. Two participants experienced the program as slow, because they had to sit down and press next after every exercise. One participant missed a stop or pause option in the program.

These two aspects are also seen as a limitation of the program. It takes too long before the next exercise can be performed. The missing pause button is also seen as a limitation. The participants

indicate that they are not always able to complete the program, because they get an unexpected visit or a phone call, and they can't continue the program later and have to start over again. Another limitation of the program was when pushing the green button unintentionally, the participant could not turn back to the previous exercise. One participant said that the explanation of the exercise not always matches the instruction film. The last called limitation is about the warming-up and cooling-down. The warming-up and cooling-down exercises are the same every day, and are not challenging enough.

Table 3; Experiences of training with the Perssilaa online exercise program

Experiences of the participants				
	Good	**Mixed**	**Bad**	**Missing**
Balance between parts of the training (n)	11	0	0	0
Difficulty of exercises (n)	9	2	0	0
Ease of use (n)	8	0	3	0
Motivating (n)	8	0	1	2
Overall experience (n)	8	3	0	0

Exercises

Nine of the eleven participants rated the difficulty of the exercises as good (table 3). Despite a good appreciation of the exercises there were a number of exercises that caused problems for some of the participants. Two participants encountered problems with walking on the heels or toes, one participant could not perform the exercise to balance on one leg, and three participants could not perform the exercise where the arms have to be lifted above the shoulders and back. Despite the fact that there was no question about the effects of the program on their health status three participants noted an improvement in their condition and overall movement.

Acceptation and satisfaction

Table 4; Results of the UTAUT questionnaire

Results of the UTAUT Questionnaire	
Topic	**Rate (Range 1-7), mean**
Ease of use	5.3
Expectation of utility	4.8
Attitude	5.7
Social norm	5.2
Self-efficacy	6.1
Intention/ Preference	6.3
Satisfaction	6.2

The results of the UTAUT questionnaire are shown in table 4. All seven topics shown in table 4 are rated above the mode (4.0), with the best score for intention/ preference (6.3) and the least good score for the expectation of utility (4.8). The participants scored high on the intention and preference part of the questionnaire. They rated the questions very high where asked if they were planning to use the program again if they had the opportunity and to the extent that it was possible to use it.

Table 5; Results of the SUS questionnaire

Results of the SUS Questionnaire	
Topic	**Rate (Range 1-5), mean**
I think I want to use the Perssilaa platform more often	3.9
I found the Perssilaa platform not complicated	4.3
I found it easy to use the Perssilaa platform	4.7
I think I don't need help to use the Perssilaa platform	4.5
I liked the integration of the various functions of the Perssilaa platform	4.3
I don't think there are many contradictions in the Perssilaa platform	3.9
I can imagine that most people quickly learn how to use the Perssilaa platform	4.1
I found the Perssilaa platform not very complicated/ difficult to use	4.0
I felt very confident when using the Perssilaa platform	4.3
I don't have to learn a lot before I can use the Perssilaa platform	4.1

All ten questions of the sustainability questionnaire scored on average above standard of 3.4 (see table 5), with the best score for the ease of use of the Perssilaa program (4.7) and the least good score for the contradictions as well as the expectation to use the program more often, both with a score of 3.9. The average value of the SUS questionnaire is 4.2, which is also above the standard of 3.4.

Discussion

This survey focused on the experiences with the Perssilaa online exercise program and the usability of the platform. Despite the importance of online home exercise programs, there has been no research done that focuses on identifying the experiences of the older adults with the home exercise programs. This study addresses this important gap in the current literature.

The program is well accepted and the participants are satisfied with the program. Most of the participants rated the ease of use of the program as good, but some adjustments could be made to make the program even better (for instance the addition of a pause button). In accordance to another

study, the older adults experienced almost no problems with the technology (23), which creates a future for the use of telemedicine interventions for older adults. This acceptation of the technology can also be caused by the selection of the research population. One of the inclusion criteria of this research was to have a computer or tablet with internet connection at home. This inclusion criteria can influence external validity of the acceptation of the technology, because the research population was already used to using a tablet or a computer. The motives for participating in the program are also an issue for discussion. Participants have been invited to a screening through the general practitioner, but people who are unwilling or are unable to use technology will join more slowly than the people who want to try something new or like to use technology. This can also influence the external validity concerning the acceptation of the technology.

The research population of this study was small. The participants were selected based on four inclusion criteria, including a score on the Short-Form (SF) 36 Physical Functioning Scale below 61. During the research a lot of variation in health status was seen between the participants. With a bigger research population, the population can be divided in different health status groups, for example groups that scored 0-20, 20-40, and 40-60 on the SF-36 Physical Functioning Scale. With this distinction in health status can be examined which group needs most support or which group benefits most from the Perssilaa online exercise program.

The external validation of this research can't be guaranteed, because of the small research population, and the limitations of a small research population mentioned above. Recommended is to do more research to the adherence rate of the program in a bigger research population. Another limitation of this study is the use of a custom made interview schedule. This makes the results difficult to interpret, and costs more time. Due to time limitations, the interviews are coded by one researcher instead of two.

Adjustments can be done based on outcomes of iterative design approaches. It is recommended to first improve and expand the program, and to create more awareness for it. More awareness can be created by promoting the program country wide in general practitioner practices, nursing homes, and physiotherapist practices. After adjusting the program, the interview method and coding scheme can be adjusted, and then further research can be done to the adjusted program in a bigger research program.

Little use is made of the Perssilaa exercise point, and only a few people were interested in using the exercise point according to the interviews. The main reason for them was the fact that they needed help while performing the exercises. Of course the participants can use the feedback option in the online exercise program, but at the exercise point caregivers are present, who can provide more precise help by explaining and correcting the execution of the exercises. So although little use is made of the exercise point, it is good to keep the exercise point open, but with a few adjustments. It is

recommended to inform the participants better about the exercise point, and to expand the opening hours of the exercise point to more days.

The drop-out rate of the Perssilaa online exercise program aligns with other studies that investigate the use of exercise programs, although these studies had bigger research populations(28-30). The reasons for drop-outs in the Perssilaa project are health problems and low satisfaction with the program. Frequently provided reasons in the other studies for this adherence and drop-out rates are a changing health status of the elderly or participation in other forms of physical activity(29). In this studies a low satisfaction isn't given as a reason to stop training. This might be a topic for a future investigation; are there still participants that mention low satisfaction as a reason to stop training after adjustments to the program are made?

The exercise adherence rate is 78%, but other studies also showed adherence rates around this number (19, 28, 31). To decrease these rates, another study indicated that providing feedback and monitoring of self-efficacy is important to increase the exercise adherence(31). The Perssilaa online exercise program already provides feedback to the participants and monitors the data of the participants in a good way. Although other studies also showed low adherence rates, these low rates can inhibit the health improvements. To improve the adherence rate a gaming aspect can be added to the program. This makes exercising more fun, but keeps the results of the program the same. Several other studies for older adults (32, 33) or people suffering chronic diseases (34) showed the same improvement in health status, but with high enjoyment. Another adjustment to make the program more motivating is to provide more feedback to the participant. After each session or after a few sessions the participant can receive a motivational message.

The difference in the number of sessions per level is attributable to the increasing difficulty of the levels. A lot of the participants experienced some health problems during the training, which was for some of them the reason to stay in the same level. Figure 5 shows the difference between the participants. A part of the participants has continued training till level five, while others stayed longer in the first levels, until they were able to perform the exercises from level two good enough and were confident that they could handle a heavier level.

With the adjustments and expanding of the program, this online exercise program will help the older adults to improve their health status at low costs for the health care industry.

Conclusion

The aim of this research was to gain insight in the experiences of older adults with the Perssilaa online exercise program. Most of the participants rated the overall experience with the program and the ease of use of the program as good. The program is well accepted and participants

were satisfied with the program. The intervention is a low cost solution for the health care industry which aims to make the older adults more active in order to partially prevent physical limitations.

The aim of the intervention to train three times a week with duration of 30 minutes is not achieved on average. This can influence the expected health improvements in a negative way. The adherence rate was a bit low, but comparable with other studies of exercise programs for elderly. To improve the adherence rate, a gaming aspect can be added to the program, to make it more motivating. A recommendation for the program is to improve and expand the program to make it more motivating, and to promote it. Further research needs to be done with the adjusted program in a bigger research population.

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Appendix 1 – Interview coding scheme
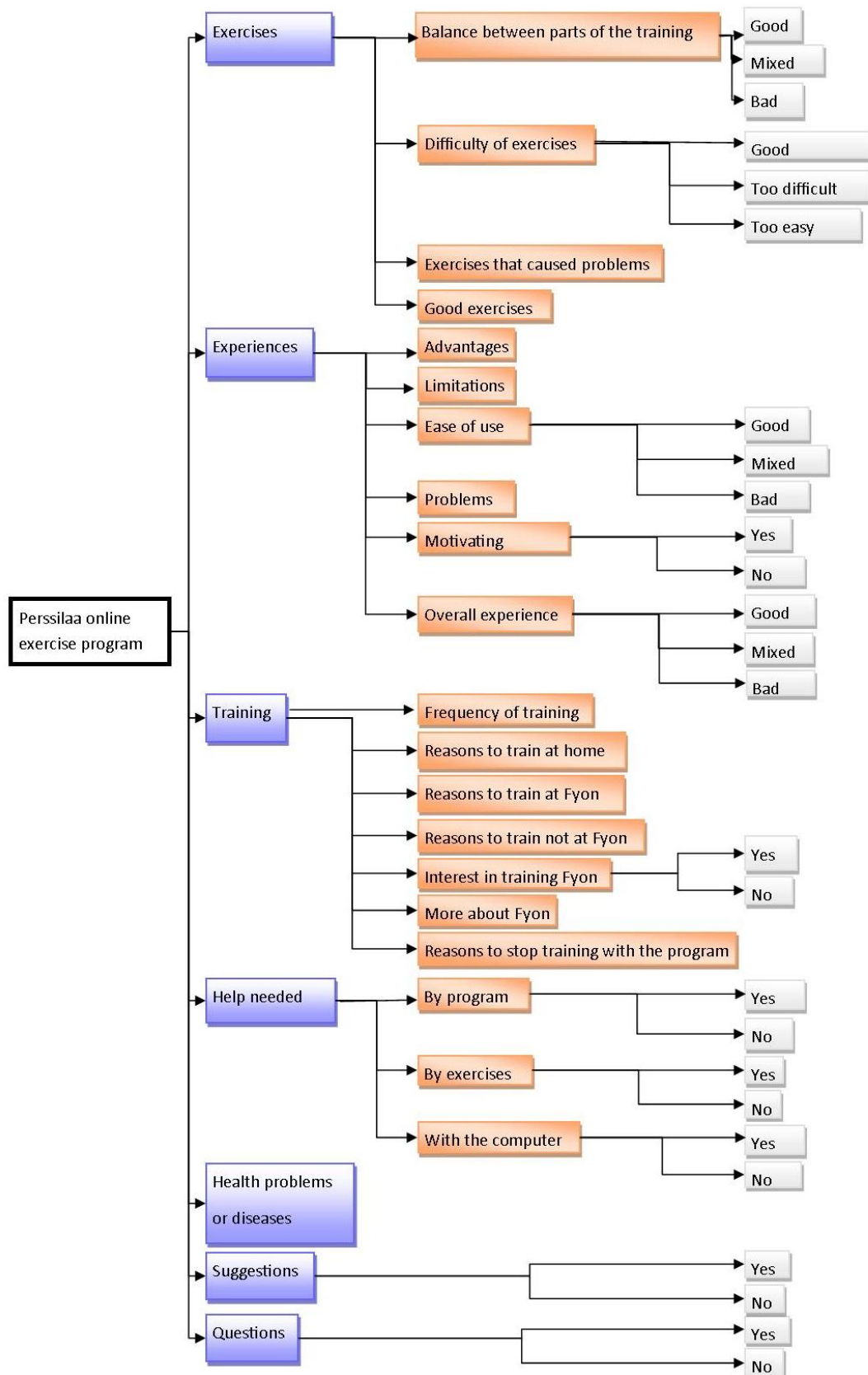
Appendix 2 - Data

Data of this research is handled confidentially and encoded, in compliance with the Dutch Act on Protection of Personal Data. A personal, not reducible number is assigned to the data of the questionnaires and the data of the interviews, no names are used by storing the data. This data is stored safely, and only researchers involved in the project have access to the data. The data is stored digitally for 15 years, using numerical code. The key for this code is only accessible by the investigator. The data can be traced to an individual subject when necessary, using a subject identification code list. This identification code list is also only accessible by the investigator. Only researchers involved in this project have access to the data.

The data from all subjects will only be used for statistical and scientific purposes and the subjects give their permission to do so, according to the informed consent. In publications, no subject names will be used.

Appendix 3 - Reflection

I learned a lot from this research project. I learned to work very independently and to set goals and deadlines for myself. At the beginning of my research project everything seemed achievable within a short time, but I've learned to estimate better how much time everything actually costs.

I also learned a lot from the interviews, what it was like to interview real participants and how to handle the data from interviews. A learning moment is the coding of the interviews. The interviews should actually have been coded by two people, but due to time constraints this is only done by one researcher.

It should have been easier if I had chosen to use an existing interview schedule, to analyze the results faster and easier. The planning of the interviews and creating the interview schedule was done together with two other students, this also costed a lot of time before I could start interviewing my participants.

Appendix 4 - UTAUT Questionnaire

Onderzoek nummer: _____

Wat is uw geboortedatum? ____ - ____ - _____

Tevredenheid

	Sterk mee oneens				Sterk mee eens		
1. Gebruikersgemak	**1**	**2**	**3**	**4**	**5**	**6**	**7**
a. Leren omgaan met het PERSSILAA platform was niet eenvoudig voor me							
b. Het was niet eenvoudig voor me om het PERSSILAA platform te laten doen wat het moest doen voor de behandeling van mijn klachten							
c. Het was niet eenvoudig voor me om vaardig te worden in het gebruik van het PERSSILAA platform							
d. Ik vond het PERSSILAA platform eenvoudig in gebruik							
2. Verwachting over nut	**1**	**2**	**3**	**4**	**5**	**6**	**7**
a. Gebruik van het PERSSILAA platform leidde tot verbetering van mijn klachten							
b. Gebruik van het PERSSILAA platform vond ik niet nuttig							
3. Houding	**1**	**2**	**3**	**4**	**5**	**6**	**7**
a. Gebruik van het PERSSILAA platform was een goed idee							
b. Gebruik van het PERSSILAA platform was onplezierig							

	Sterk mee oneens			Sterk mee eens			
4. Sociale norm	1	2	3	4	5	6	7
a. Mijn Huisarts was van mening dat ik het PERSSILAA platform zou moeten gebruiken.							
b. Mijn partner was van mening dat ik het PERSSILAA platform zou moeten gebruiken							
c. Ik hecht zeer weinig/ zeer veel waarde aan de mening van mijn huisarts							
d. Ik hecht zeer weinig/ zeer veel waarde aan de mening van mijn partner							
5. Eigen effectiviteit	1	2	3	4	5	6	7
a. Ik had de vaardigheden om met het PERSSILAA platform te kunnen werken							
b. Ik kon het PERSSILAA platform laten doen wat het moest doen							
c. Het ontbrak mij aan kennis om met het PERSSILAA platform te kunnen werken							
d. Ik had de middelen (apparatuur, training, helpdesk) om met het PERSSILAA platform te kunnen omgaan							
e. Ik was bang dat ik iets forceerde wanneer ik thuis of in de kiosk gebruik maakte van het PERSSILAA platform							
f. Ik was bang dat ik de oefening niet juist uitvoerde wanneer ik thuis of in de kiosk gebruik maakte van het PERSSILAA platform							
g. Ik had thuis genoeg ruimte om gebruik te maken van het PERSSILAA platform							
h. Ik kon thuis voldoende rust vinden om gebruik te maken van het PERSSILAA platform							

6. Intentie / Preferentie	1	2	3	4	5	6	7
a. Als ik de kans heb, ben ik van plan om in de toekomst het PERSSILAA platform weer te gebruiken							
b. Voor zo ver mogelijk ben ik van plan om in de toekomst het PERSSILAA platform te gebruiken							
7. Satisfactie	1	2	3	4	5	6	7
a. Het PERSSILAA platform was overzichtelijk							
b. Het PERSSILAA platform was makkelijk in gebruik							
c. De filmpjes en teksten van het PERSSILAA platform zijn voor mij duidelijk							
d. Het PERSSILAA platform was een waardevolle aanvulling op mijn dag invulling							
e. Het PERSSILAA platform motiveerde mij om regelmatig te trainen							
f. Welke cijfer (van 1-10) geeft u het PERSSILAA platform							
8. Kosten							
a. Als het gebruik van het PERSSILAA platform niet vergoed wordt, zou ik bereid zijn om er voor te betalen	JA			NEE			
b. Indien u bereid bent om te betalen, hoeveel euro's zou u betalen van het PERSSILAA platform per maand?	1	5	10	20	30	40	50

Ruimte voor extra opmerkingen:

Appendix 5 - SUS Questionnaire

<u>Gebruik</u>

Instructie: Geef voor iedere stelling aan in welke mate u met deze stelling oneens / eens bent door het hokje aan te kruizen wat het beste past bij uw mening over het zojuist gespeeld spel

		In sterke mate mee oneens			In sterke mate mee eens	
1	Ik denk dat ik het PERSSILAA platform vaker wil gebruiken.					
2	Ik vond het PERSSILAA platform onnodig ingewikkeld					
3	Ik vond het PERSSILAA platform gemakkelijk in gebruik					
4	Ik denk dat ik hulp nodig heb om het PERSSILAA platform te kunnen gebruiken					
5	Ik vond de verschillende functies van het PERSSILAA platform goed geïntegreerd.					
6	Ik denk dat er te veel tegenstrijdigheden in het PERSSILAA platform zitten.					
7	Ik kan me voorstellen dat de meeste personen snel leren hoe ze het PERSSILAA platform moeten gebruiken.					
8	Ik vond het PERSSILAA platform erg omslachtig / lastig in gebruik					
9	Ik voelde me erg zelfverzekerd tijdens het gebruik van het PERSSILAA platform.					
10	Ik moet nog veel leren voordat ik het PERSSILAA platform kan gebruiken.					

Appendix 6 - Interview script for users and drop-outs of the Perssilaa online exercise program

PERSSILAA interview script   04 mei 2015 – 21 mei 2015

Benodigdheden	
1.	PERSSILAA-kledij
2.	Identiteitskaart
3.	Datarecorder
4.	(Laptop)
5.	Cadeau/presentje
6.	Notitieblok en pen
7.	Vragenlijst op papier

Hallo mevrouw/meneer ………….
Allereerst bedankt dat wij u mogen interviewen.

Wij zullen ons eerst even voorstellen (*voorstellen met namen*). Wij studeren verpleegkunde/gezondheidswetenschappen en doen onderzoek naar de ervaringen met betrekking tot het PERSSILAA online oefenprogramma waar u onlangs mee getraind hebt of sinds enige tijd gebruikt van maakt.

Wij willen u hier graag wat vragen over stellen, met betrekking tot twee thema's:
- *Zelfmanagement*
- *Technologie*

Wij zullen u een aantal vragen gaan stellen over het gebruik van het PERSSILAA online oefenprogramma. Dit interview zal ongeveer een uur duren. Wij hebben dus voor uw interview een tijd ingepland van …… uur tot ……. uur.

We zullen het gehele interview opnemen op de datarecorder om ervoor te zorgen dat wij uw antwoorden zo nauwkeurig mogelijk kunnen verwerken voor een goede betrouwbaarheid van dit onderzoek. Uw antwoorden op deze vragen zullen vertrouwelijk worden behandeld en zijn anoniem.

Het interview starten we met vragen over zelfmanagement. Daarna volgen er enkele vragen met betrekking tot uw ervaringen met het PERSSILAA online oefenprogramma. Ten slotte stellen wij u wat vragen over de gebruiksvriendelijkheid van de technologie. Wij zullen nu starten met de vragen die betrekking hebben op het zelfmanagement.

Zelfmanagement
1. *Inleiding*: De huidige maatschappij is er op gericht om ervoor te zorgen dat mensen zo lang mogelijk zelfstandig thuis kunnen blijven wonen, zelf de regie blijven houden over hun eigen leven en zo goed en zo lang mogelijk kunnen blijven deelnemen aan activiteiten binnen de maatschappij. Wat vindt u daarvan? (*Participatie*, *zelfredzaamheid*, *zelfregie*).

2. Wat zijn uw toekomstverwachtingen als het gaat om uw gezondheid op lichamelijk gebied? (zelfredzaamheid)

   2.1.   Wat zijn uw toekomstverwachtingen als het gaat om het blijven participeren in de maatschappij? (sociale participatie)

3. Heeft u vertrouwen in uw eigen vaardigheden om voor uzelf te blijven zorgen?

   3.1.   En hoe zit dat met uw vaardigheden om contacten met anderen te onderhouden?

4. Welke dingen onderneemt u op dit moment, om daar 'later' baat bij te hebben? (op lichamelijk, psychisch en sociaal gebied)

5. Welke initiatieven neemt u om iets te gaan doen (alleen of met iemand anders/iets actiefs, sociaals).

6. Onderneemt u ook activiteiten die zowel voor uzelf als voor anderen nut hebben? (Zo ja, wat?)

7. Hoe denkt u over de mogelijkheden die technologie biedt om het lang zelfstandig thuis wonen mogelijk te maken?

Brug naar PERSSILAA: U heeft een tijdje geleden de uitnodiging gehad om deel te nemen aan het PERSSILAA online oefenprogramma. U heeft dus ervaring met het programma en de technologie hieromheen.
Wij zullen u nu wat vragen gaan stellen met betrekking tot uw ervaringen met PERSSILAA.

Ervaringen PERSSILAA

8. Wat zijn uw ervaringen met het trainen met het PERSSILAA online oefenprogramma?

    8.1. Was er iemand die u motivatie gaf om deel te nemen aan het PERSSILAA online oefenprogramma?

        8.1.1. Vindt u het PERSSILAA online oefenprogramma motiverend, en zo ja; waarom?

9. Wat vindt u van de oefeningen van het PERSSILAA online oefenprogramma?

    9.1. Wat vindt u van de moeilijkheidsgraad van de oefeningen (in elk level)?

    9.2. Wat vindt u van de verdeling van de oefeningen tussen de onderdelen balans, kracht en flexibiliteit?

Bij de volgende vragen (9.3. t/m 9.5) is van tevoren aangegeven welke van de volgende vragen op de deelnemer van toepassing is.

    9.3. U traint alleen in de thuissetting, wat zijn uw redenen om thuis te trainen? Zou u interesse hebben om 1 keer per niveau te trainen bij het Fyon centrum om te kijken of u de oefeningen correct uitvoert?

    9.4. U traint alleen maar/ook bij het Fyon, wat zijn uw redenen om op het PERSSILAA punt bij het Fyon te trainen?

        9.4.1. Zou u vaker dan één keer per week op het Fyon trainen als de mogelijkheid er daarvoor zou zijn?

    9.5. U bent enige tijd geleden gestopt met het gebruiken van het Perssilaa online oefenprogramma. Wat zijn uw redenen om geen gebruik meer te maken van het oefenprogramma? *

* (denk aan tijdsplanning, medische redenen, aversie computers, programma niet wenselijk, etc.)

Gebruiksvriendelijkheid van de technologie

10. Welke vaardigheden had u nodig om deel te kunnen nemen aan het PERSSILAA online oefenprogramma? (Denk aan technische vaardigheden, zoals omgang met computer of tablet)

   10.1. Was u al in het bezit van deze vaardigheden of heeft u deze geleerd om deel te kunnen nemen aan het PERSSILAA online oefenprogramma?

11. Wat vindt u van de gebruiksvriendelijkheid van het PERSSILAA oefenprogramma?**

   11.1. Heeft u nog suggesties om het <u>gebruik van het programma gemakkelijker</u> te maken/te verbeteren?

   11.2. Ervaart u <u>beperkingen</u> omtrent het gebruik van het programma?

   11.3. Heeft u <u>hulp</u> nodig gehad bij het <u>uitvoeren van de oefeningen</u> van het platform in welke zin dan ook? Zo ja; van wie dan?

   11.4. Heeft u <u>hulp nodig gehad</u> bij het <u>gebruiken van het online oefenprogramma</u> (bijvoorbeeld bij het gebruik van de computer of tablet)?

12. Heeft u nog andere suggesties, vragen of opmerkingen met betrekking tot het PERSSILAA online oefenprogramma?

**Bij het stellen van vraag 11, is het van belang om te kijken of onderstaande onderstreepte stukken in het antwoord voorkomen. Indien dit niet het geval is, kunnen de vragen 11.1. tot en met 11.4. gesteld worden.