Deliverable 2.4

Usability and Accessibility Evaluation Report

Responsible Unit: FCID

Contributors: FCID, TERZSTIFTUNG, SUNRH

Document Technical Details:

Document Number	D2.4
Document Title	Usability and Accessibility Evaluation Report
Version	1.0
Status	Final
Work Package	WP2
Deliverable Type	Report
Contractual Date of delivery	30/9/2017
Actual Date of Delivery	23/10/2017
Responsible Unit	FCID
Contributors	FCID, TERZSTIFTUNG, SUNRH
Keywords List	Usability evaluation, Accessibility evaluation
Dissemination Level	Public

Document Change Log:

Version	Date	Status	Author	Description
0.1	28/9/2017	Draft	C.Duarte, FCID	Document Structure and Test Methodology
0.2	2/10/2017	Draft	C.Duarte, FCID, S.Kroll, TERZSTIFTUNG	Results from Swiss Tests
0.3	12/10/2017	Draft	C.Duarte, FCID, A.M.Sanders, SUNRH	Results from Norwegian Tests
0.4	14/10/2017	Draft	C.Duarte, FCID	Integration of all results and conclusions
0.5	18/10/2017	Draft	C.Santoro, CNR C.Chesta, Reply	Review
1.0	21/10/2017	Final	C.Duarte, FCID	Final version

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

CONTENTS

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

1 INTRODUCTION

This document reports the usability and accessibility tests conducted to evaluate the developed PersonAAL framework and applications.

In a first section the document reports a set of tests conducted in February 2017 to assess the state of the Remote Assistant and the Rule Editor applications, in order to improve them during the course of the second year of the project.

The remainder of the document describes the usability and accessibility testing that took place in the final part of the second year and concluded the activities in work package 2. The goals of the testing include establishing a baseline of user performance for the final user trials, establishing and validating user performance measures, and identifying potential design concerns to be addressed in order to improve the efficiency, productivity, and end-user satisfaction of the PersonAAL outcomes.

The usability test objectives are:

- To determine design inconsistencies and usability problems within the user interface and content areas. Potential sources of error may include:
  - Navigation errors – failure to locate functions, excessive keystrokes to complete a function, failure to follow recommended screen flow.
  - Presentation errors – failure to locate and properly act upon desired information in screens, selection errors due to labelling ambiguities.
  - Control usage problems – improper toolbar or entry field usage.
- Exercise the applications under controlled test conditions with representative users. Data will be used to assess whether usability and accessibility goals regarding an effective, efficient, and well-received user interface have been achieved.
- Establish baseline user performance and user-satisfaction levels of the user interface for future usability evaluations.

The PersonAAL framework and applications target older adults that are still capable to live independently in their homes, with the goal to extend the time they can still do so. The usability tests participants should be representatives of this user group. Two groups of participants took part in the usability trials: one in Switzerland, the other in Norway. The usability test took place in a controlled environment from mid July to late September.

In the remainder of this document, the February tests are summarized in section2, the evaluation methodology for the usability and accessibility testing is described in section 3, the results of the testing are reported in section 4, organized by testing site, and conclusions are drawn in section 5.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

2 SUMMARY OF THE RESULTS OF EARLY TESTING OF THE REMOTE ASSISTANT AND RULE EDITOR APPLICATIONS

2.1 Remote Assistant Application

The user tests were carried out with 18 test participants aged between 45 and 85. The sample includes 4 informal care givers and 14 older persons. A questionnaire divided into 8 parts according to the structure of the application was used as basis of the test (Annex 1 – Remote assistant application early test questionnaire). The application was tested on a 10,2 inches tablet. To get as much information as possible and to avoid interaction between different users all user tests were carried out as single test with one test participant and the test leader. All test sessions took place in the office from the end user organization where the whole technical equipment is in place.

To gain deep insight of the usability of the system qualitative and quantitative questions were asked in each of the 8 parts. In general, the menu guidance of the system is evaluated as good and easy to handle. All main features are ordered in a structured way and makes it easy to the users to orientate. Clear buttons and colours makes it easy to the user to handle filters and main features.

As supposed measurement of health data is an important part of an elderly's daily life. Furthermore, it is important not to upset the users with little, but still normal variances of their health data. They wish only to see abnormal values.

The results show that older people like a structured day. This attitude can be seen in the opinion about the plan of the remote assistant application. The structure of this part is seen as comfortable and user friendly. Only a short description was desired so that they get along with the system more quickly. One of the most important statements given by the older test persons was the wish of a more standardized plan. If users always have to create their plans individually from a blank slate this means they will have to make decisions. In this context elderly may have problems to make own decisions what could trigger stress to them. In conclusion, it seems to be important to have a standardized tool.

Another important point mentioned by the test persons is the view on older people. They wish to be treated in a normal way. According to this, avoid aggressive warning that they need to be careful. This can lead to the opposite.

In general, the users would like to have an overview of the system and a guideline about the next steps if they use one of the offered modules of the system. This shows that this type of user does not like surprises or obscure functions.

In addition to the overall handling of the system it is important to have the same structure on every module. Older users get confused if the same function is located on different places.

Beside the questions asked in an open questionnaire, three standardized scales were used to ask for the usability of the system. After each task the test person finished, the test leader

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

asked the test person for its opinion about working with the module. Therefore, the so called RSME[1] (Rating Scale for Mental Effort) was used. The scale consists of a single scale with nine levels from "Almost no effort" to "extreme effort". The result shows that all models of the application with a clear and intuitive structure could be used easily by the test persons. Whereas modules with an unclear and less intuitive structure were difficult for the users and stressed some of them. In general, the test persons answered these questions between "absolutely no effort" and "rather much effort".

For a second rating the SUS[2] (System Usability Scale) was used at the end of each user test. This scale is a simple ten-item scale giving a global view of subjective assessments of usability. For the present user test a five point Likert scale was used to rate the user's answer. Most of the test persons could imagine to work with the system and think it is easy to use.

The last scale which was used at the very end of each test session was developed by Human Performance Group at NASA's Ames Research Center. The NASA-TLX[3] (NASA Task Load Index) rates perceived workload in order to assess the whole tested application. This scale was used to get a general feedback from the workload the test participants had during they test/used the system. As could be seen in the results the workload of all test participants was low during the usage of the system. That implies that the system does not stress them much.

2.2 Personalization Rule Editor

The second user test was carried out with 7 potential end users. The sample is aged between 45 and 80 years and includes 3 older persons and 4 informal caregivers. Nearly none of them has experience in programming. Differently from the first user test, the test participants tested the application on the Computer. This device was used because of the size of the trees representing the hierarchies of triggers and actions when they are fully unfolded. As the first test the second one took place in the office of the end user organization and the persons were questioned alone.

To test the full usability of the rule editor application the test session was divided into two main parts (ANNEX 2 – Personalization Rule Editor Early Test questionnaire). First the users commented on the exhaustiveness of the triggers and actions available in application to get an insight on how well can they fit the users' environment. This step was useful to adjust the triggers and actions available in the application to the users' needs. The second part focused on the technical usability of the rule editor. Here the test leader described, using natural language, a behaviour that the system should implement. The exercise for the participants was to translate that behaviour into a rule and learn to use the application. Using this method, the test person gains a deeper insight into the system and can give a more detailed feedback.

[1] Zijlstra, F., & van Doorn, L. (1985). The construction of a scale to measure subjective effort. In Technical Report. Delft University of Technology.
[2] Brooke, J. (1996). SUS-A quick and dirty usability scale. Usability evaluation in industry, 189(194), 4-7.
[3] Hart, S. G., & Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. Advances in psychology, 52, 139-183.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The results of the usability test show that the structure of the application is clear and well-structured at a first glance. This structure of the trigger and action are clear to the users, they know this from other programs (e.g., Microsoft Excel). The tree structure and therefore good imagination of the built up helps the user to get along with the rule setting. But once deep in the tree structure users have problems not to get lost. They have difficulties to remember where they can find the next steps, because the whole structure is not visible.
In some fields of the trigger or action tree empty fields need to be filled in with values by the users themselves. Here they wish to have clear selection menus like drop down menus, scrolling menus or number keypad if numbers are desired. This released them from decision making and creates some kind of safety to them. Using such menus relieves users of the responsibility to make their own decision. Especially those users, older persons as well as informal care givers, who can just hardly follow the idea of the structure need such simple help to work with the application.

To guarantee a smoothly use of the rule editor a detailed written introduction and help function are seen as necessary.

2.3 Summary

In a nutshell, both systems are build up in a simple way that can be used by older persons and their informal caregivers easily. For further development, a consistent structure and clear communication is necessary. To guarantee a stress-free handling, decisions need to be predefined by the system. A clear structure with consistent use of buttons and symbols is important for a smoothly handling by the end users.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

3 METHODOLOGY

The usability and accessibility tests involved a total of 49 participants, split between two sites: one in Switzerland, moderated by terzStiftung, and one in Norway, moderated by Sunnas Rehabilitation Hospital. In the tests, held in a controlled environment, the participants interacted with several PersonAAL applications (Medication Monitoring Application, Remote Assistant Application, and Rule Editor) supported by the PersonAAL framework, through a browser, either from a tablet or a personal computer. Given that the start of the final year user trials is near, these tests were designed to provide a summative evaluation of the PersonAAL applications and services. Different measures to assess ease of use and usability and accessibility problems were collected leading to an assessment of the state of the project and its adequacy for the user trials. The following sections detail the methodology planned for the tests.

3.1 Participants

A total of 49 participants were involved in the tests: Twenty-nine participants in the Swiss site, and 20 participants in the Norwegian site. Participants were recruited through the patient and support networks of the two institutions moderating the tests. Participants were required to belong to one of the target groups: elderly people or informal caretakers. As we learned before, informal caretakers are usually elderly people themselves. Participants were expected to know how to interact with a browser, either in a tablet or a personal computer, but no further expertise was required.

The participants' responsibilities were to attempt to complete a set of representative task scenarios presented to them in as efficient and timely a manner as possible, and to provide feedback regarding the usability and acceptability of the user interface. The participants were then directed to provide honest opinions regarding the usability of the application, and to participate in post-session subjective questionnaires and debriefing.

Participants were not previously aware of the applications being tested.

3.2 Training

The participants received an overview of the usability test procedure, equipment and software. Before each group of tasks, an overview about the application being tested was provided to the participants, but no specific training regarding the applications were provided. The concepts pertaining to the applications that were required to understand the tasks to be executed were explained as necessary before the corresponding tasks.

All the PersonAAL and application features tested were fully functioning and supported by the implemented framework.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

3.3 Procedure

Participants took part in the usability test at terzStiftung facilities in Switzerland and Sunnas Rehabilitation Hospital in Norway. Both a tablet and a desktop computer with the PersonAAL applications and supporting software loaded were used. The tasks for the Medication Monitoring application and the Remote Assistant application were completed in the table, unles otherwise specified in the results. Tasks for the Rule Editor were completed in the desktop computer. The participant's interaction with the PersonAAL applications was monitored by the facilitator seated in the same room. Note takers and data logger(s) monitored the sessions. The test sessions were not videotaped.

The facilitator briefed the participants on the PersonAAL application(s) and instructed the participant that they are evaluating the application, rather than the facilitator evaluating the participant. Participants signed an informed consent that acknowledges: the participation is voluntary, that participation can cease at any time, and that their privacy of identification will be safeguarded. The facilitator asked the participant if they have any questions.

Participants completed a pre-test demographic and background information questionnaire. The facilitator explained that the amount of time taken to complete the test task will be measured and that exploratory behaviour outside the task flow should not occur until after task completion. At the start of each task, the participant reads aloud the task description from the printed copy and begins the task. Time-on-task measurement begins when the participant starts the task.

The facilitator instructed the participant to 'think aloud' so that a verbal record exists of their interaction with the PersonAAL application(s). The facilitator observed and entered user behaviour, user comments, and system actions in the data logging application.

After each task, the participant completes the post-task questionnaire and elaborates on the task session with the facilitator. After all task scenarios are attempted, the participant completes the post-test satisfaction questionnaire for each application.

3.4 Roles

The roles involved in a usability test are as follows. An individual may play multiple roles and tests may not require all roles.

3.4.1 Trainer

- Provide training overview prior to usability testing

3.4.2 Facilitator

- Provides overview of study to participants
- Defines usability and purpose of usability testing to participants
- Assists in conduct of participant and observer debriefing sessions
- Responds to participant's requests for assistance

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

3.4.3 Data Logger

- Records participant's actions and comments

3.4.4 Test Observers

- Silent observer
- Assists the data logger in identifying problems, concerns, coding bugs, and procedural errors
- Serve as note takers.

3.5 Ethics

All persons involved with the usability test are required to adhere to the following ethical guidelines:

- The performance of any test participant must not be individually attributable. Individual participant's name should not be used in reference outside the testing session.

3.6 Usability Tasks

The usability tasks were derived from test scenarios developed from use cases. Due to the range and extent of functionality provided in the PersonAAL applications, and the short time for which each participant will be available, the tasks selected for the user tests were the most common and most of them of low complexity. The tasks are identical for all participants of a given user role in the study.

All the applications tested were supported by the PersonAAL framework under normal operating conditions. To ensure that user data representing past activities was already in the system (to create more realistic tasks), the user profile of each participant during the test was artificially connected to an existing, pre-populated, user profile. Data introduced by the participants during the test was deleted after the test was completed to make sure that all users begun their test in the same state.

The test was organized in the following stages.

3.6.1 Pre-test questionnaire

For each participant we collected their age, gender, if they are a caregiver for a senior, if they have any impairments that might impair the use of the PersonAAL applications, and, in case they do, which impairment.

3.6.2 Medication Monitoring Application

After an introduction to the application, the participants were asked to authenticate, enter details of two medications in the system, navigate and read the calendar, edit medications, work with notifications, assess medication status and log out. The difficulty and effectiveness of each task was registered. Usability and workload were measured with a System Usability Scale

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

and the NASA TLX questionnaires. The full questionnaire for the medication monitoring test can be consulted in ANNEX 3 – Medication Monitoring Application Questionnaire.

3.6.3 Remote Assistant Application

After an introduction to the application, the participants were asked to authenticate, fill the quality of life survey, plan and report activities, assess persuasive messages, and work with notifications. The difficulty and effectiveness of each task was registered. Usability and workload were measured with a System Usability Scale and the NASA TLX questionnaires. The full questionnaire for the remote assistant test can be consulted in ANNEX 4 – Remote Assistant Application Questionnaire.

3.6.4 Rule Editor

After an introduction to the editor, the participants were asked to create rules with simple triggers, simulate the correct operation of rules, and create a rule with a complex trigger. The difficulty and effectiveness of each task was registered. Usability and workload were measured with a System Usability Scale and the NASA TLX questionnaires. The full questionnaire for the rule editor test can be consulted in ANNEX 5 – Rule Editor Questionnaire.

3.7 Usability Metrics

Usability metrics refer to user performance measured against specific performance goals necessary to satisfy usability requirements. Scenario completion success rates, adherence to dialog scripts, error rates, and subjective evaluations were used.

3.7.1 Scenario Completion

Each scenario requires, or requests, that the participant obtains or inputs specific data that would be used in course of a typical task. The scenario is completed when the participant indicates the scenario's goal has been obtained (whether successfully or unsuccessfully), the test facilitator observes the successful completion of the scenario, or the participant requests and receives sufficient guidance as to warrant scoring the scenario as a critical error (e.g., facilitator assisting a participant that is stuck in one task because it cannot find the required information of action needed to proceed).

3.7.2 Critical Errors

Critical errors are deviations at completion from the targets of the scenario. Obtaining or otherwise reporting of the wrong data value due to participant workflow is a critical error. Participants may or may not be aware that the task goal is incorrect or incomplete.

Independent completion of the scenario is a universal goal; help obtained from the facilitator is cause to score the scenario a critical error if it was necessary for the user to complete the task. Critical errors can also be assigned when the participant initiates (or attempts to initiate) and action that will result in the goal state becoming unobtainable. In general, critical errors are unresolved errors during the process of completing the task or errors that produce an incorrect outcome.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

3.7.3 Non-critical Errors

Non-critical errors are errors that are recovered from by the participant or, if not detected, do not result in processing problems or unexpected results. Although non-critical errors can be undetected by the participant, when they are detected they are generally frustrating to the participant.

These errors may be procedural, in which the participant does not complete a scenario in the most optimal means (e.g., excessive steps and keystrokes). These errors may also be errors of confusion (ex., initially selecting the wrong function, using a user-interface control incorrectly such as attempting to edit an un-editable field).

Non-critical errors can always be recovered from during the process of completing the scenario. Exploratory behaviour, such as opening the wrong menu while searching for a function, will not be coded as a non-critical error.

3.7.4 Subjective Evaluations

Subjective evaluations regarding ease of use and satisfaction will be collected via questionnaires, and during debriefing at the conclusion of the session. The questionnaires will utilize free-form responses and rating scales.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

4 RESULTS

4.1 Swiss Tests

4.1.1 Participants

All respondents of the survey were asked for basic characteristics such as gender, age and personal health condition.

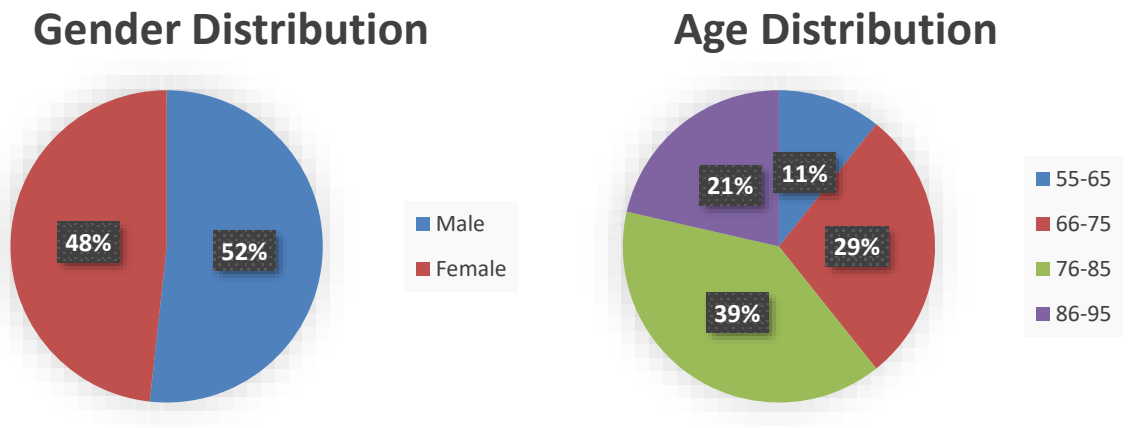


Figure 1 – Gender (left) and age (right) distributions of the participants in the Swiss tests

Most of the respondents can be found in the age group of 66-75 years and 76-85 years (29% and 39%). The third largest group, with 21% of respondents, is between 86 and 95 years old. A minority of 11 % is younger than 65 years old. None of the respondents is younger than 55 years old (Figure 1 - right). Regarding gender (Figure 1 - left), the distribution was almost even. 52% of the respondents were male, 48% female.

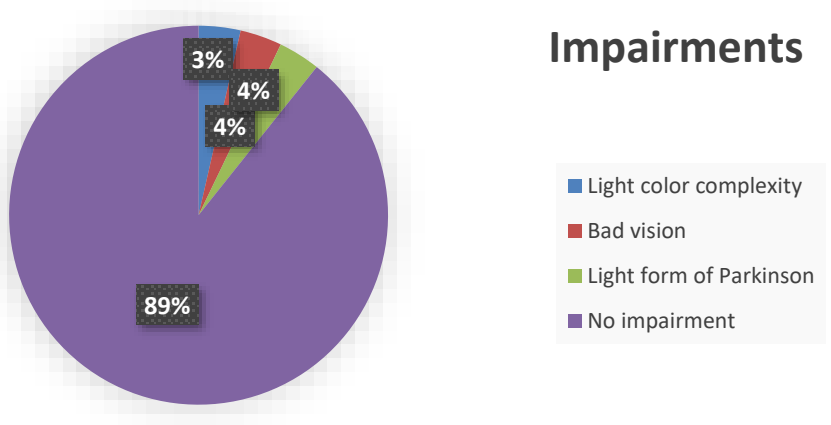


Figure 2 – Impairment distribution of the participants in the Swiss test

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

When asked about health condition, a large majority of 89% reported that they do not suffer from any impairments (Figure 2). Only a minority indicated to suffer from health impairment due to light colour complexity (3%), bad vision (4%) and light form of Parkinson (4%).

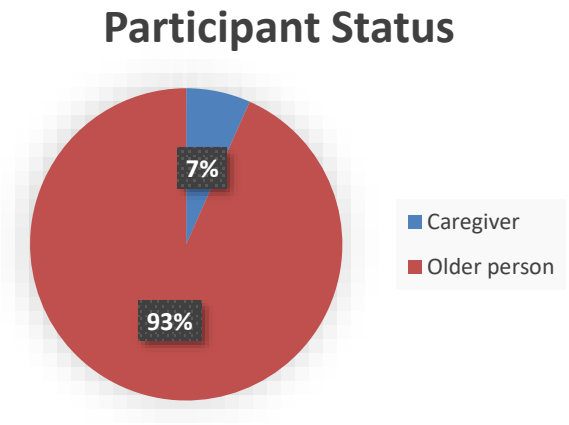


Figure 3 – Status of the participants in the Swiss test

The majority, with 93% of the interviewed persons, has reached an advanced age and can be defined as end-users (Figure 3). A minority of 7% of the interviewees were formal caregivers.

4.1.2 Medication Monitoring Application

Assignment 1: Authentication - Look at the screen on the tablet/computer, and follow the instructions to log in to an account.

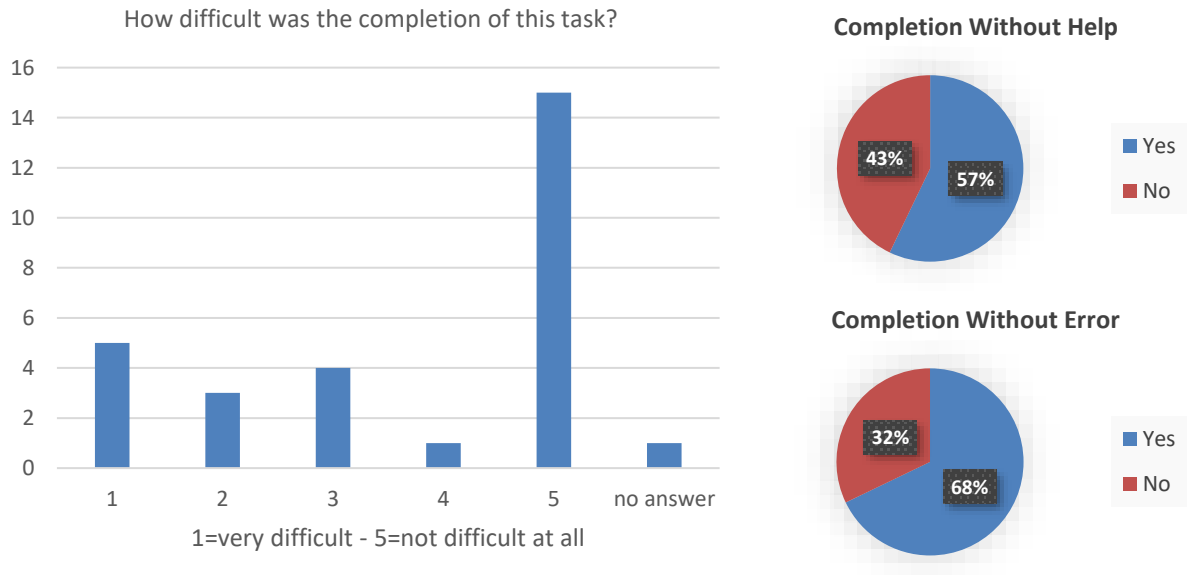


Figure 4 – Difficulty perceived and completion ratio for the authentication task

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

After the first instruction, the interviewees were asked how difficult the completion of the task was. Most of the respondents reported that the completion of the task was not difficult (16 interviewed persons), whereas a little bit less than the half (8 interviewed persons) reported that the task was difficult. The respondents, who answered in a negative way, mentioned comments like "Font is too small", "Not used to touchscreens", "too sensible" and "box too small".

Assignment 2: Create Medication
Instruction 1: Enter the following medication: Cozaar (medication for high blood pressure), one pill to take once a day in the mornings until the end of the year. Set a time that typically would be convenient for you in the morning, before or after breakfast, when you typically will be in your house/apartment.

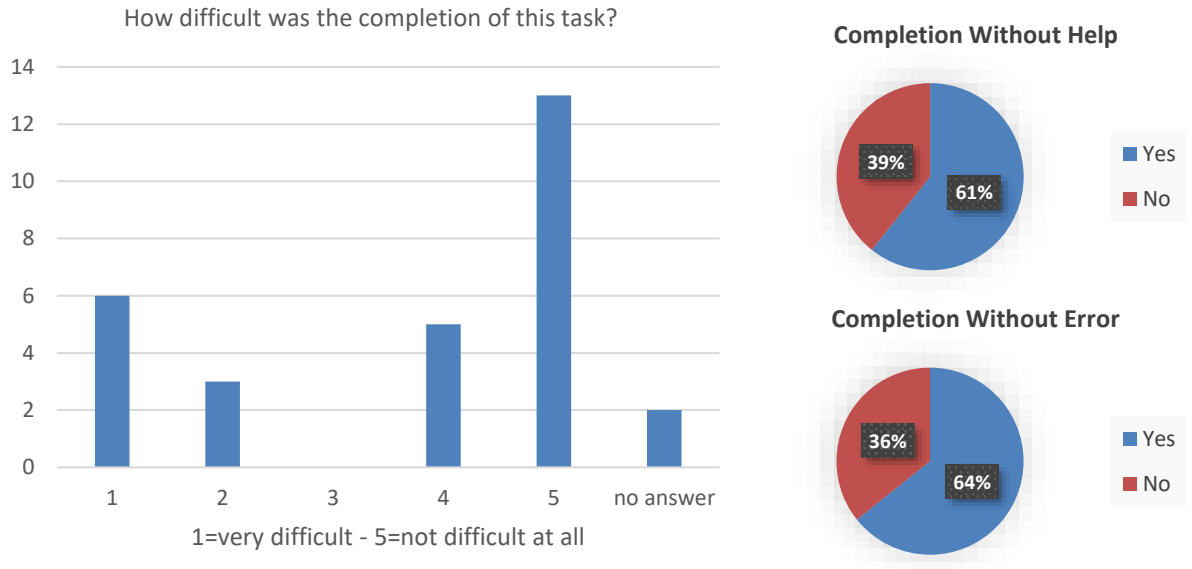


Figure 5 – Difficulty perceived and completion ration for first medication entered

As can be seen in Figure 5, for most of the respondents the completion of the task was not difficult (18 interviewed persons), whereas for 9 respondents it was difficult. The respondents who had problems noted that the font is too small. A bit more than half (61%) of the respondents could complete the task without help and 64% without error.

Instruction 2: Enter the following medication: Calcium-Sandoz (for osteoporosis), pill dissolved in a glass of water, taken in the evenings, also until the end of the year. Set a time that typically would be convenient for you in the evening.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

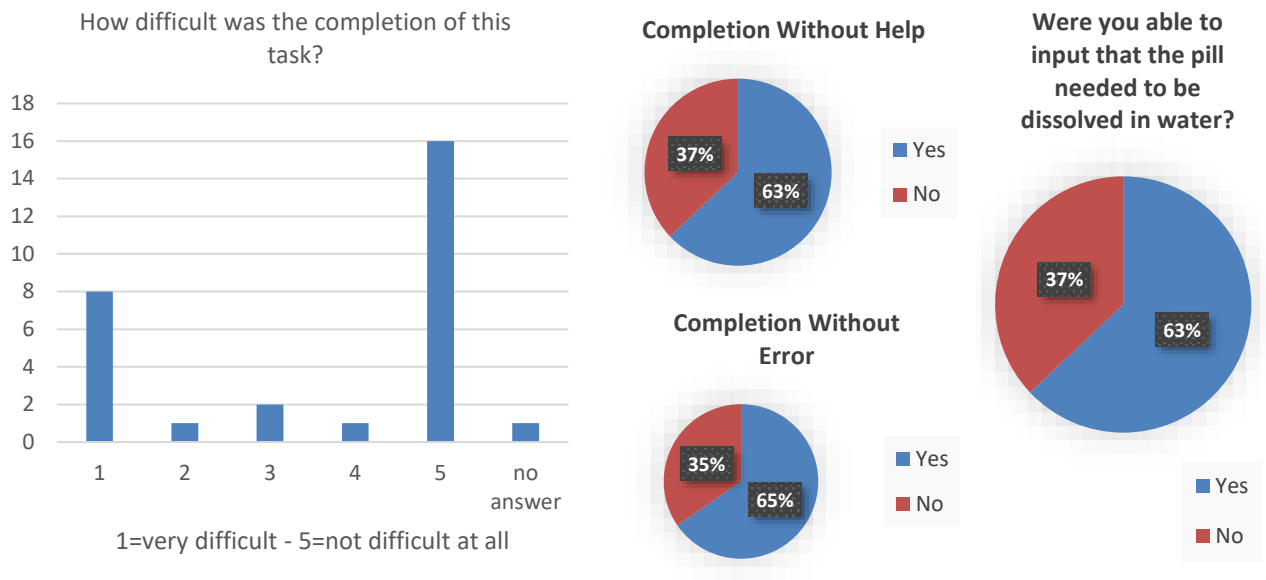


Figure 6 – Difficulty perceived and completion ratio for the second medication entered

Figure 6 shows that the majority of the respondents (17 interviewed persons) think that they can complete the task without any difficulties, while for 9 respondents the completion was difficult and also even very difficult. About 63% could complete the task without help and 65% without error. When asked if they were able to input that the pill needed to be dissolved in water, about 63% answered this question with "yes".

Assignment 3: Calendar - Go to the Calendar and find the date one month from now

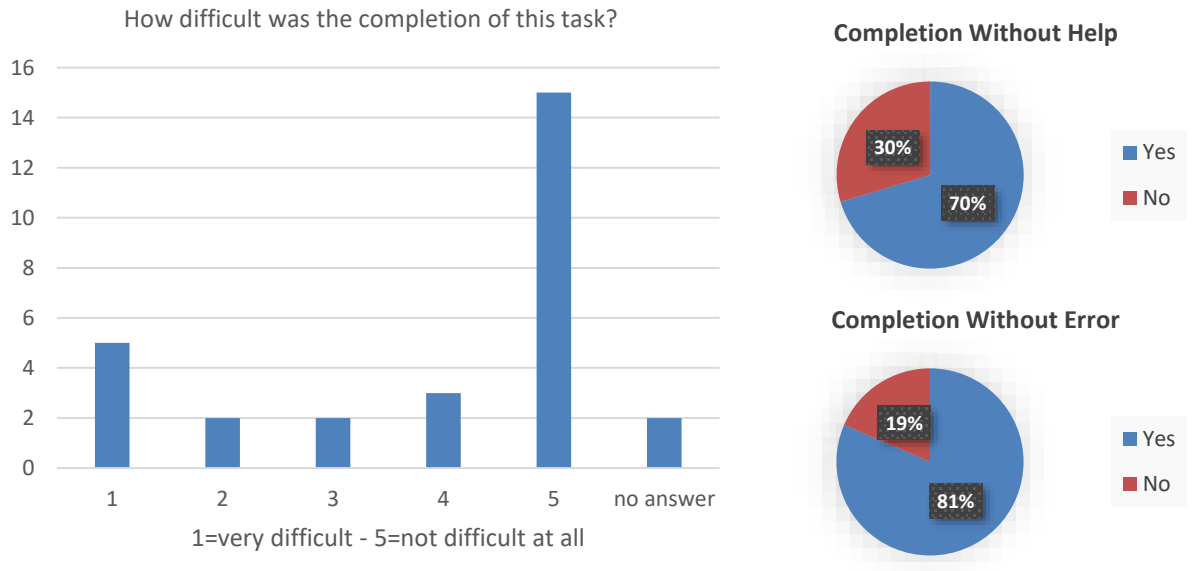


Figure 7 – Difficulty perceived and completion ratio for the calendar task

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

As shown in Figure 7 the result was very similar compared to the second assignment. The majority of the respondents rated this task again as not difficult (18 persons) while 7 persons rated the task as difficult, with 2 abstentions and 2 respondents who answered neutral. About 70% of the interviewees didn't need help with the completion of the task and 81% could complete it without error.

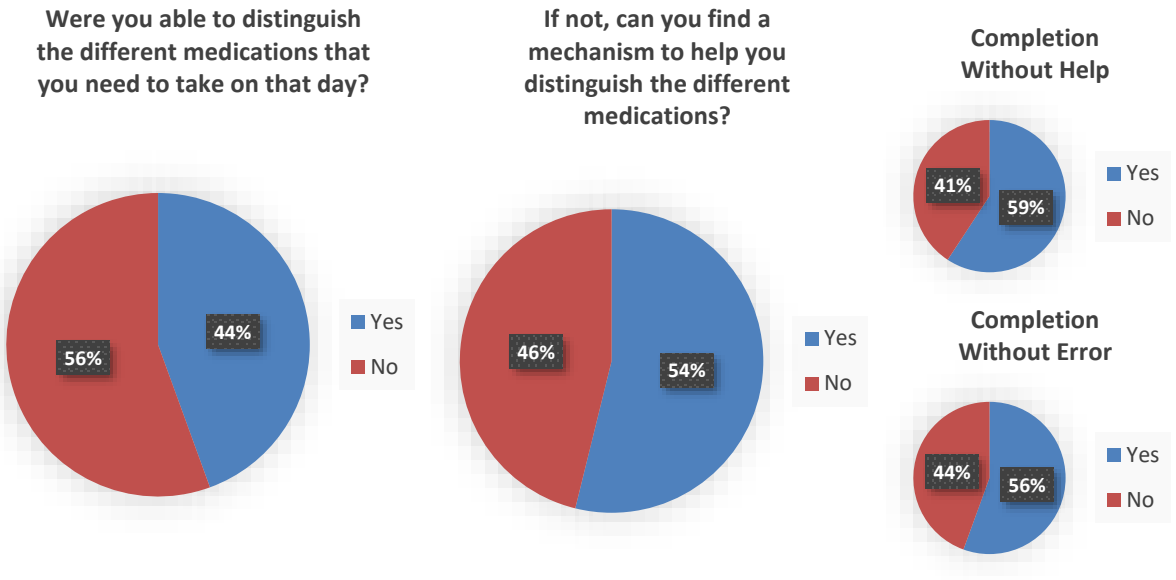


Figure 8 – Calendar usability and completion ratio

When asked if they are able to distinguish the different medications that they need to take on that day, most respondents answered with "no" (56%) as seen in Figure 8. With the following question, it turned out that most of the respondents could not find a mechanism to help themselves. About 59% of the interviewed persons did not need help and 56% completed without error.

Assignment 4: Editing Medication & Notification
Instruction 1: Set a new time to take Cozaar, 3 minutes from now

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

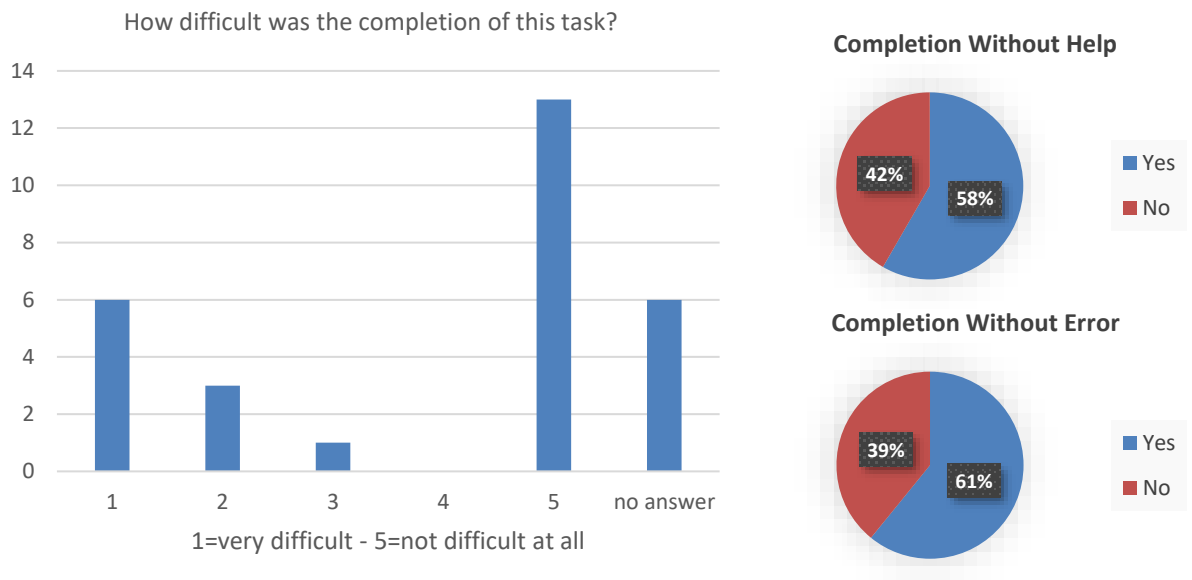


Figure 9 – Difficulty and completion ratio for the update medication task

For the majority, the completion of this task was not difficult at all (13 respondents), whereas 9 respondents had problems with the completion of the task (Figure 9). From 6 interviewed persons, no rating was given and 1 answered neutral. More than half of the respondents could complete the task without help (58%) and errors (61%).

Instruction 2: Wait until the notifications pop up on the screen, and press "OK" for taking the medication.

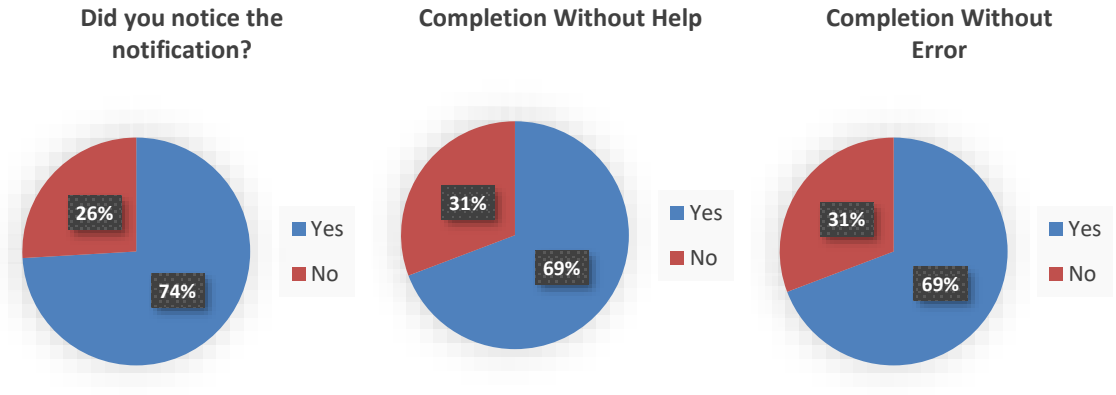


Figure 10 – Notifications awareness and task completion ratio

As shown in Figure 10, most of the respondents did notice the notification (74%). For the accomplishing of this task, most of the respondents didn't need assistance (69%) and the same percentage could complete it without error.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Instruction 3: Report that you have taken the medication.

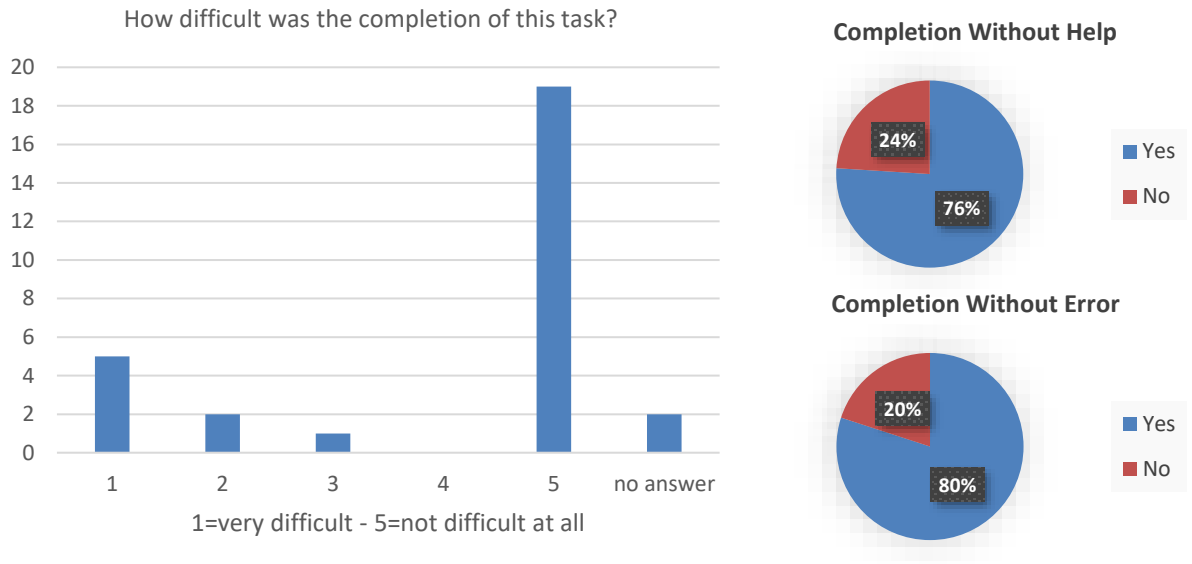


Figure 11 – Difficulty perceived and completion ratio for medication reporting

When asked to report that they have taken the medication, the majority of the respondents (19) could solve the task without any difficulties while 7 persons had problems (Figure 11). Accordingly, about 76% of the respondents didn't need any help to complete the task and 80% could accomplish it without error.

Assignment 5: Medication status - Go back to the initial screen? Please report which medication you have already taken and which medication you still need to take today.

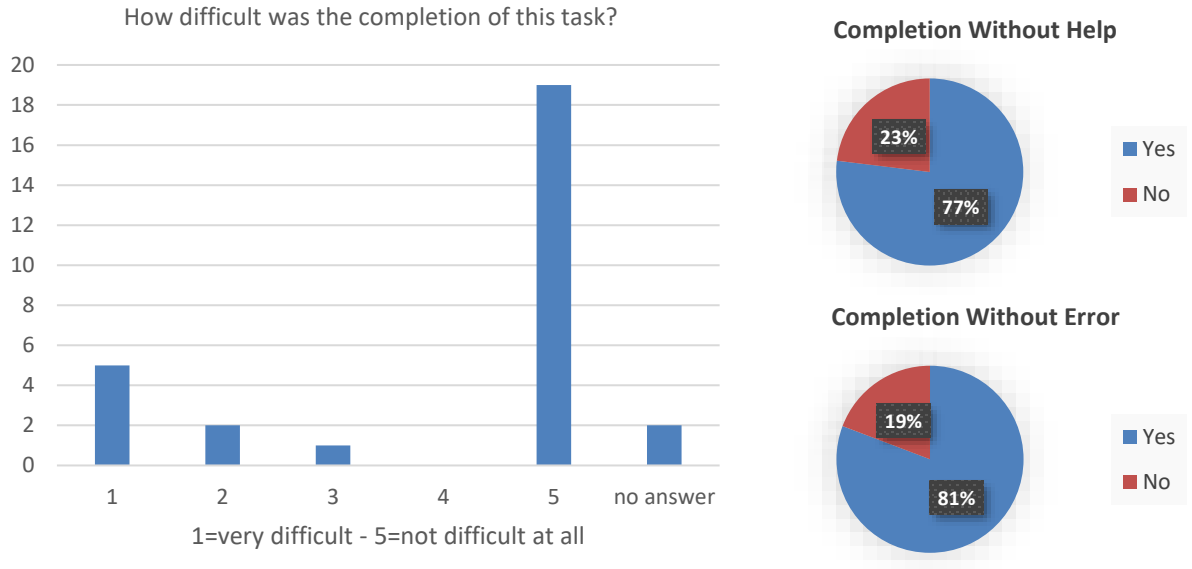


Figure 12 – Difficulty perceived and completion ration for medication awareness

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

When asked to report which medication they have already taken and which medication they still need to take on this day, most respondents (19) rated this task at not difficult at all (Figure 12). Only 7 respondents had difficulties, with 2 abstentions and 1 neutral answer. To accomplish this task, 77% did not need help and 81% could complete it without error.

Assignment 6: Logging out – Log out from the application

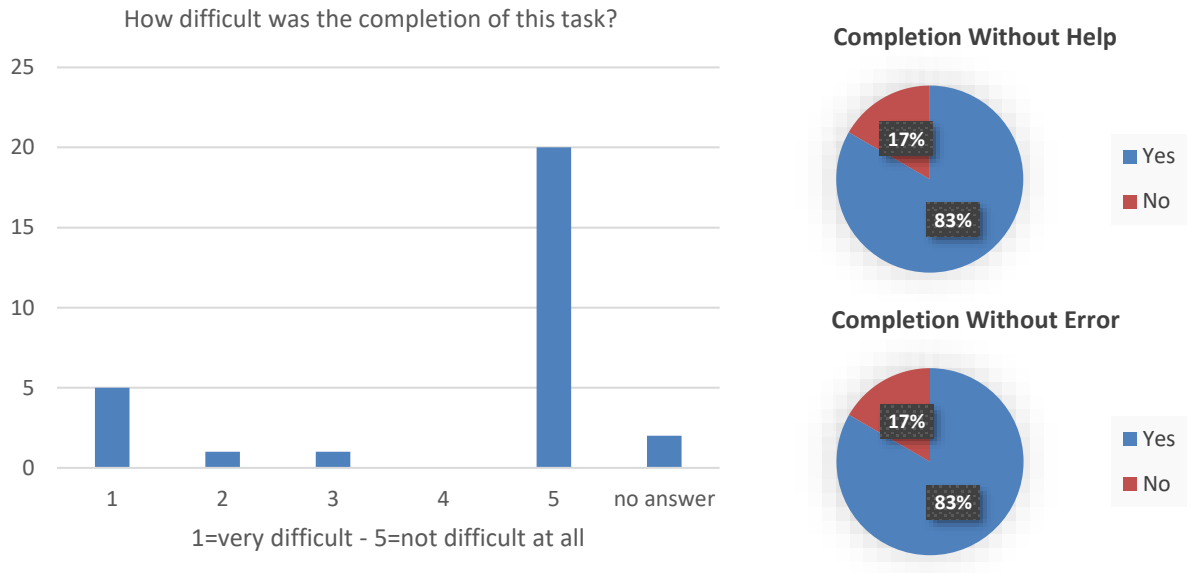


Figure 13 – Difficulty perceived and completion ratio for the logout task

As regard to logging out from the application, most of the respondents had no difficulties with the completion of this task (Figure 13). Only 6 respondents considered the task difficult. For the completion of the task, about 83% didn't need help and could complete it without error.

After completion of the tasks, participants were inquired about their perception of the tasks' difficulty and answered the SUS and NASA-TLX questionnaires.

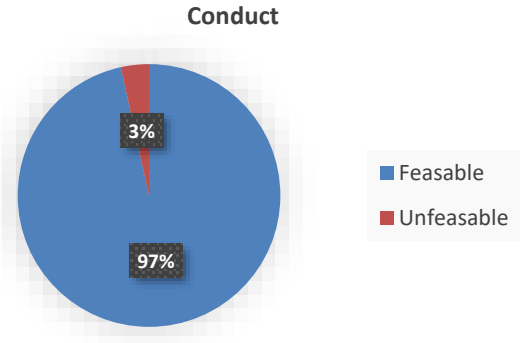
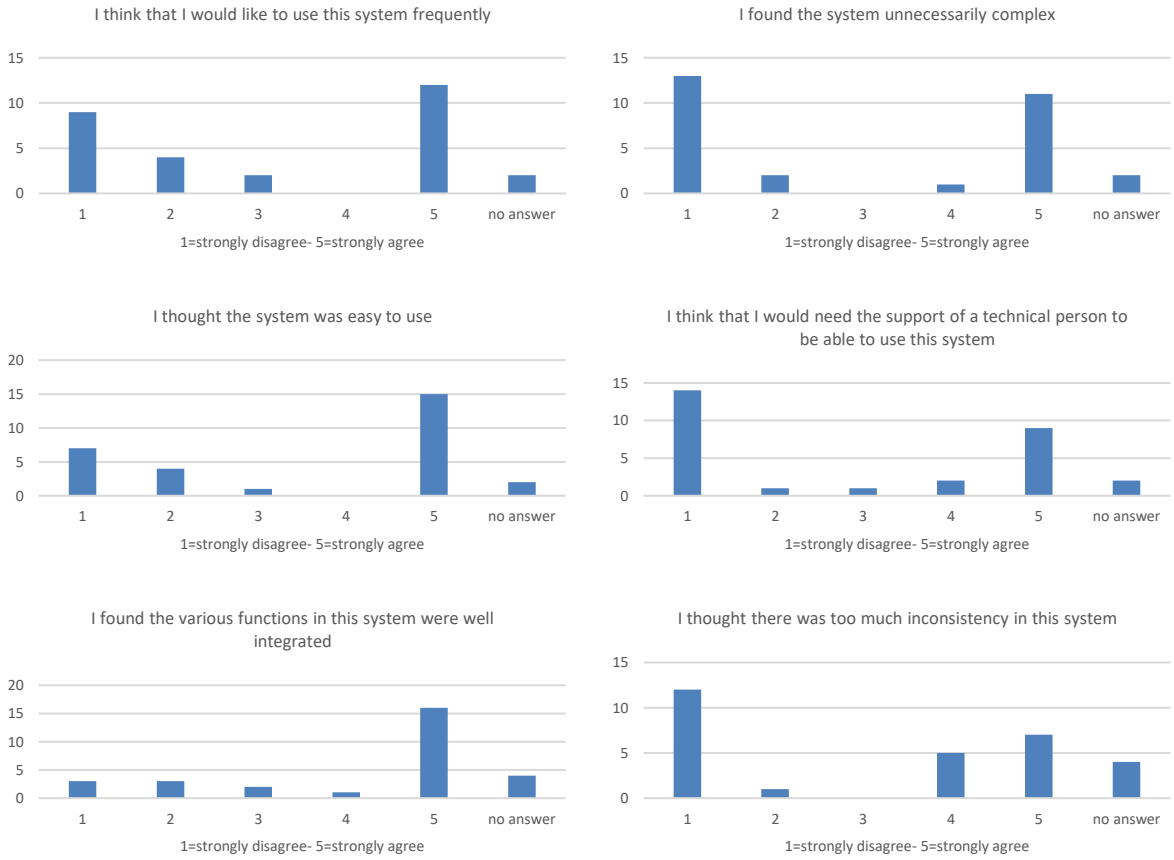


Figure 14 – Participants overall perception of the tasks feasibility

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

About 97% of all respondents considered the tasks as feasible whereas only one of the interviewed persons considered them as too difficult (Figure 14).

The answers to the individual SUS questions are presented in Figure 15.



The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

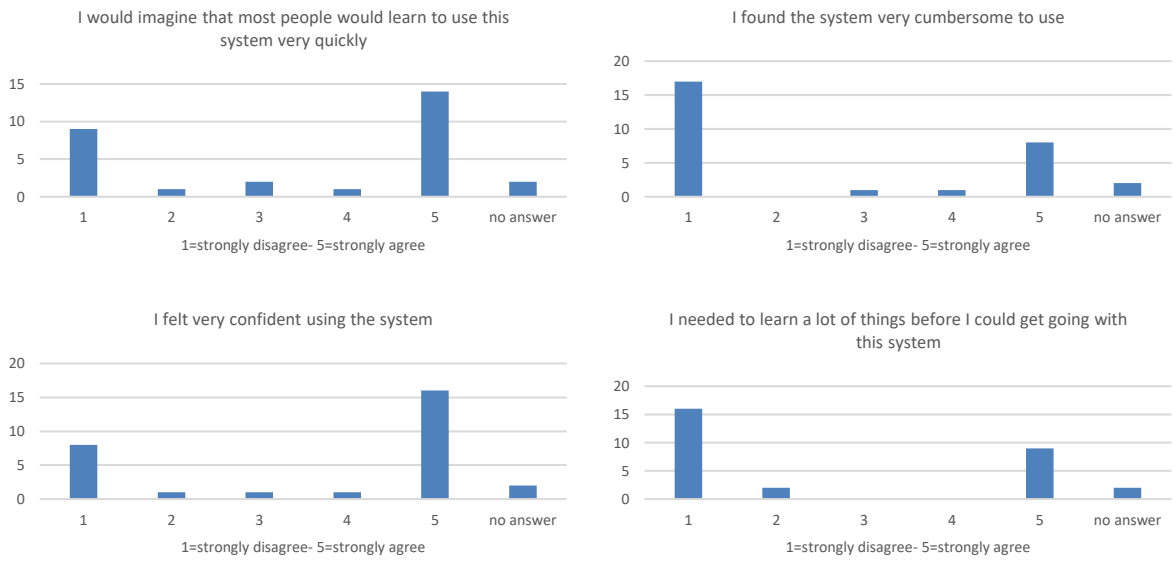


Figure 15 – Individual SUS answers

The results show that the opinions concerning this system diverge widely. A little bit more than half of the respondents would like to use this system frequently and found it not complex at all. The other half does not want to use is at all and found it unnecessarily complex. Accordingly, almost the half of the respondents think that they would need the support of a technical person to be able to use this system. A clear majority rated that the various functions in this system were well integrated, whereas half of the respondents thought that there was too much inconsistency in this system. Most of the respondents could imagine that most people would learn to use this system very quickly and a clear majority felt very confident using the system and did not find it cumbersome to use. However, most respondents noted that they needed to learn a lot of things before they could get going with the system.
The average SUS score for all the participants that answered the 10 questions was 67, which is very close to the overall average SUS score value, which is 68. This means that this is already an usable application, but there is room for improvements.

The individual items of the NASA-TLX questionnaire are presented in Figure 16.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

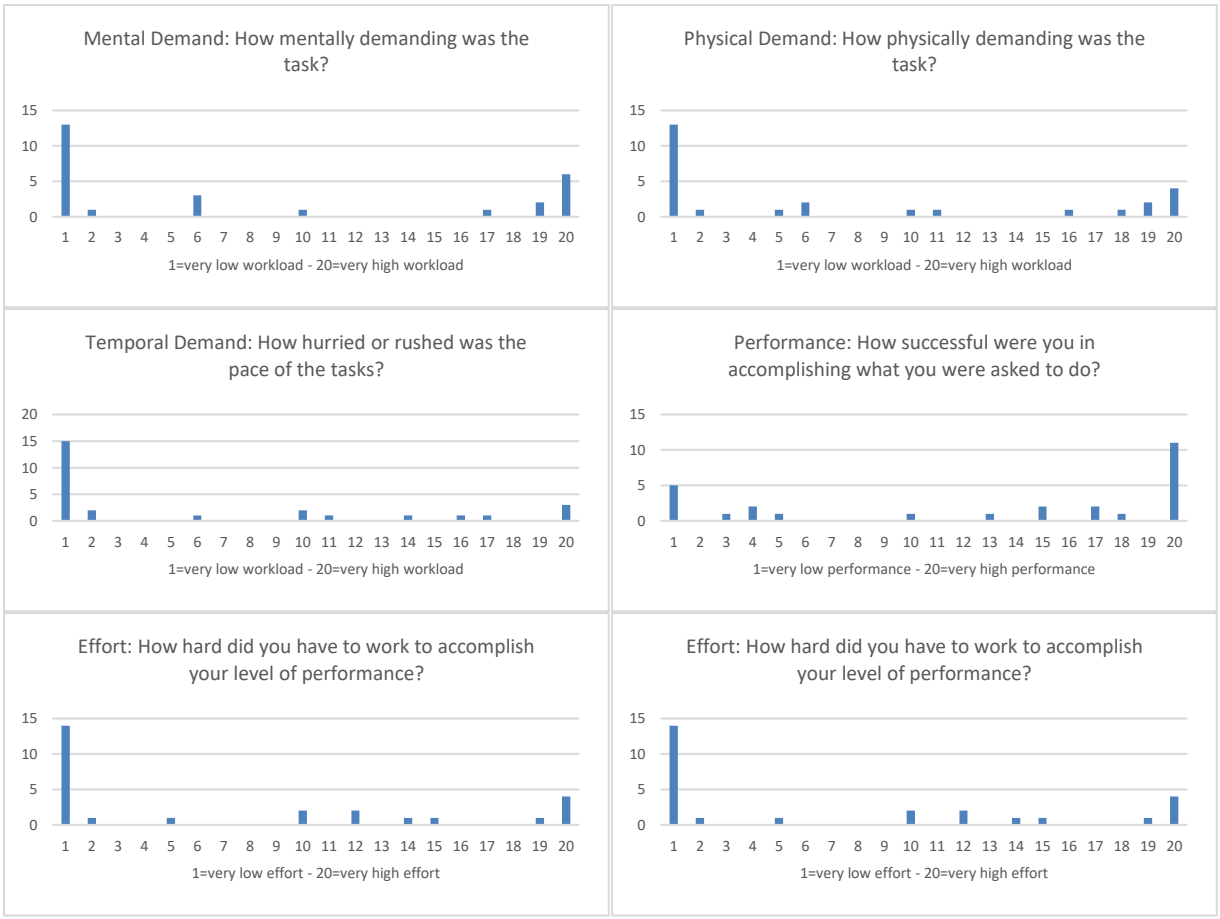


Figure 16 – Answers to individual items of the NASA-TLX questionnaire

The mental and physical demand was mostly considered as very low during the survey. The respondents did not feel hurried or rushed, concerning the pace of the tasks and felt very successful in accomplishing what they were asked to do. As a result, the level of insecurity, discouragement, irritation, stress and annoyance was very low.
The overall raw (non-weighted) NASA-TLX score was 36,75, which is on the low end of the scale, representing a low requested workload. While this is the overall tendency, it is important to point out that some of the respondents scored very high in the workload scale. Measures should be taken to understand what are the problems that these specific participants identified.

4.1.3 Remote Assistant Application

Assignment 1: Authentication - Look at the screen on the tablet/computer, and follow the instructions to log in to an account with the following details

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

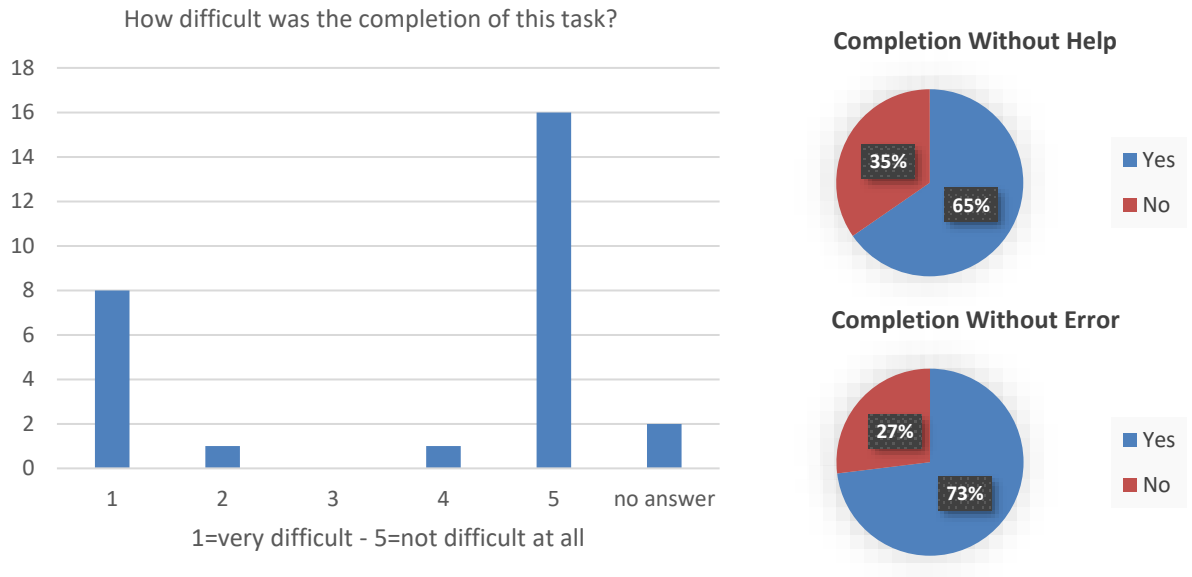


Figure 17 – Difficulty perceived and completion ratio for authentication task

After the first instruction, the interviewees were asked how difficult the completion of the task was (Figure 17). Eight interviewed persons considered the task as very difficult, whereas twice as much (16 interviewed persons) reported that the task was not difficult at all. The respondents, who answered in a negative way, mentioned comments like "use too sensitive", "hard to identify the boxes", "box too small" and "keyboard too complicated". Most of the respondents (65%) could complete the task without help and 73% without errors.

Assignment 2: Survey - Please find the survey and answer the questions

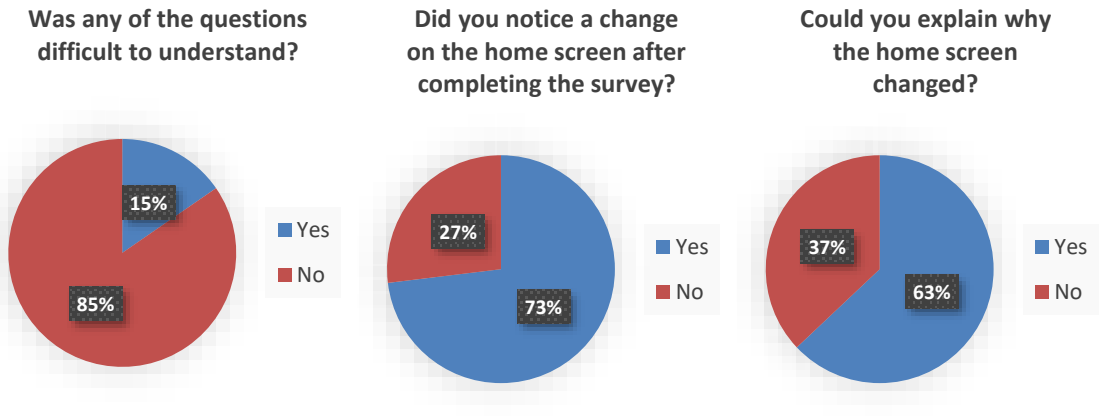


Figure 18 – Participants perceptions about the survey

As can be derived from Figure 18, for about 85% of the respondents the questions were not difficult to understand. A majority of 73% did notice a change on the home screen after

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

completing the survey, and 63% could explain why the HME screen changed. One of the respondents mentioned, that the font is too small and could be bigger.

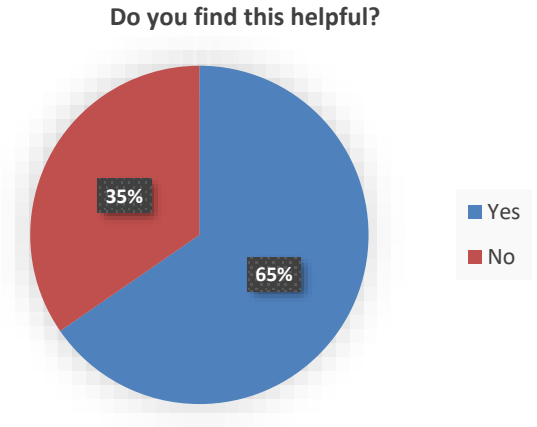


Figure 19 – Perceived usefulness of the survey and its effects

As regards to the question if this is considered as helpful, about 65% of the respondents answered with "yes". The respondents who answered positive commented this with "good service", "reasonable", "very good idea" and "makes sense". The respondents who answered with "no" (35%) mentioned, that it is "irritating", "too complicated" and that it "doesn't make sense".

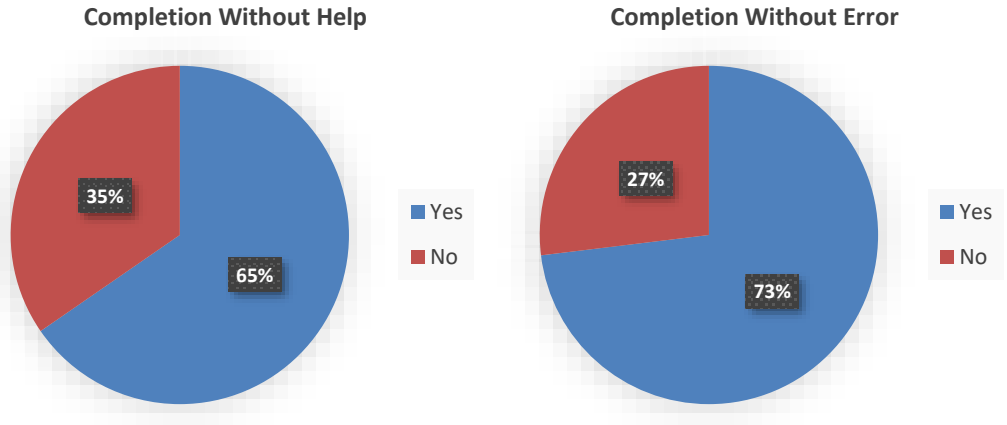


Figure 20 – Completion ratio of the survey task

As shown in Figure 20, most of the interviewed persons (65%) didn't need help and 73% of the respondents could complete it without error.

Assignment 3: Plan Screen
Instruction 1: For the sake of the test, set up your weekly goals as 60 minutes of exercise, walking 20.000 steps and meeting more than 5 people

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

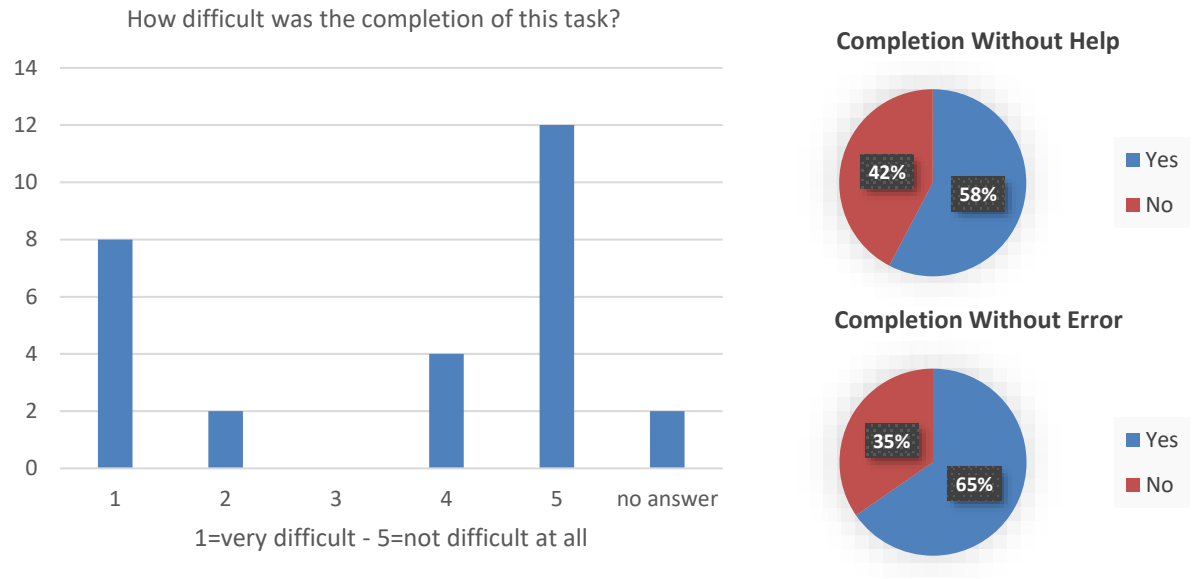


Figure 21 – Difficulty perceived and completion ratio for the planning task

Figure 21 shows that the result for this question is not so clear. The completion of the task was not very difficult for most of the respondents (16). However, for 10 interviewed persons, it was difficult. Accordingly, a bit more than half of the respondents could complete the task without help and 65% without error.

Instruction 2: Report that you have worked out 30 minutes yesterday

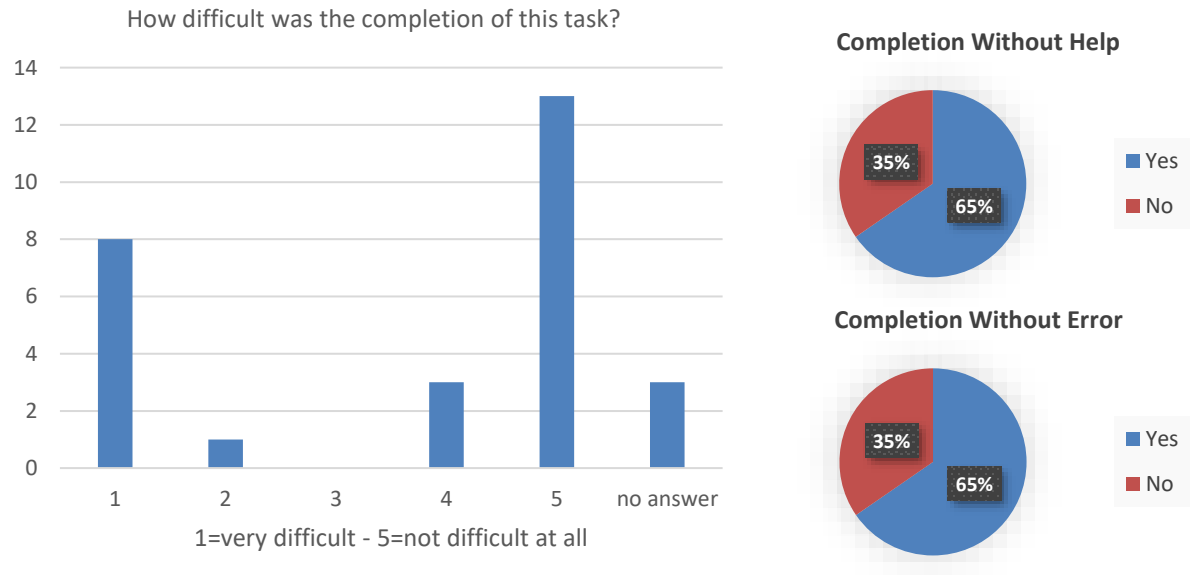


Figure 22 – Difficulty perceived and completion ratio for the reporting task

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

For the majority, the completion of this task was not difficult (16 respondents). For 9 interviewed persons, the task seemed to be difficult to complete, with 3 abstentions (Figure 22). A similar percentage (65%) of participants could complete the task without help or making an error.

Instruction 3: Plan to walk 4000 steps tomorrow

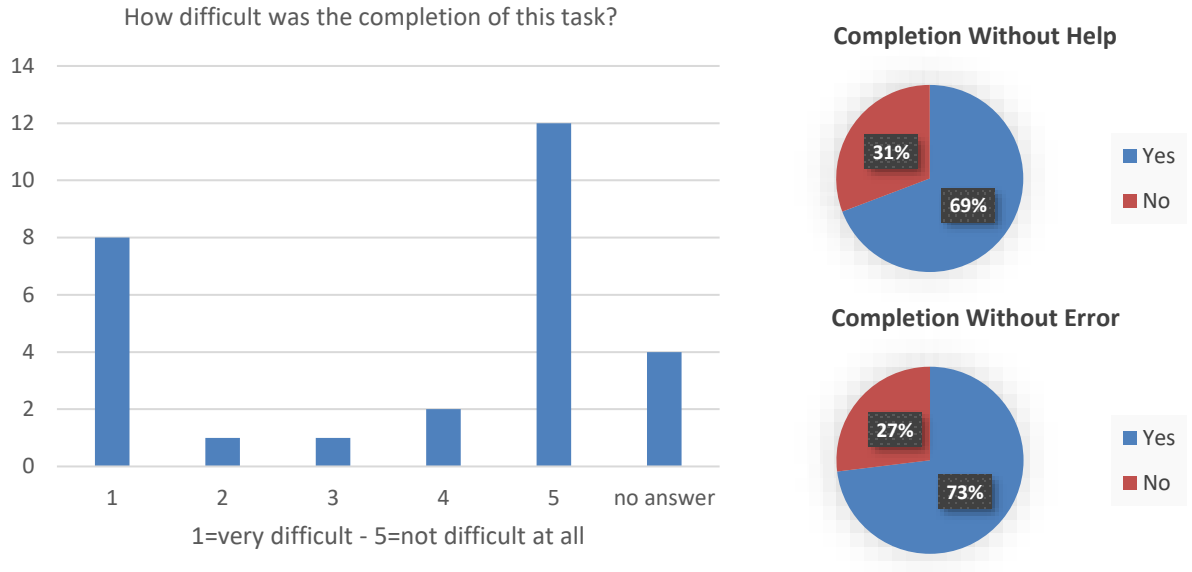


Figure 23 – Difficulty perceived and completion ratio for the second planning task

As can be derived from Figure 23, the opinions of the respondents are very different. Most of the respondents considered the completion of the task not difficult (14 interviewed persons). However, for 9 respondents it was difficult. About 69% of the respondents could complete the task without help and 73% without error.

Assignment 4: Persuasive Messages

Instruction 1: For the sake of the test, imagine it is now 4PM.

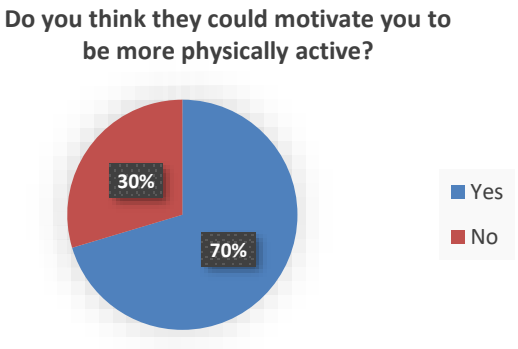


Figure 24 – Perceived effectiveness of type first class of persuasive messages

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

As regard to the motivation to be more physically active, 70% of the respondents answered with "yes" (Figure 24). Some respondents who answered with "no" mentioned their garden as reason or lack of motivation.

Instruction 2: Now imagine you are leaving your home.

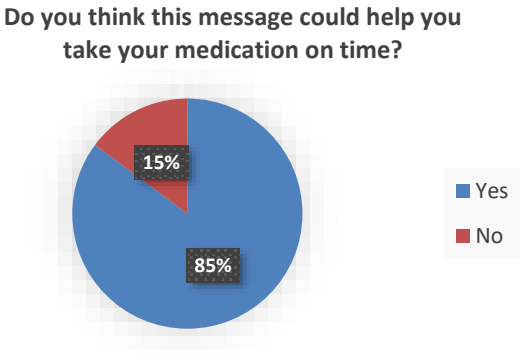


Figure 25 – Perceived effectiveness of the second class of persuasive messages

When asked if this message could help to take the medication on time, a clear majority of 85% answered with "yes" (Figure 25). One respondent mentioned that she would go to the doctor and ask: "do I need this?".

Instruction 3: Now imagine you are sitting in your living room watching TV

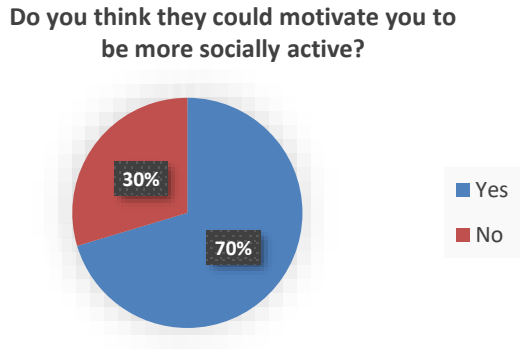


Figure 26 – Perceived effectiveness of the third class of persuasive messages

As shown in the charts the respondents answered very positive, as 70% of the interviewed persons think that they could become motivated to be more socially active (Figure 26).

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

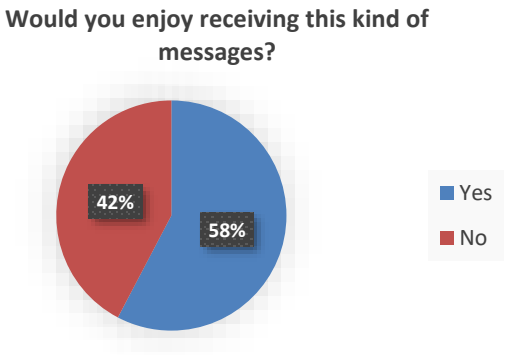


Figure 27 – Interest in receiving persuasive messages

More than half of the respondents (58%) would enjoy receiving this kind of messages (Figure 27). Among them, the majority would appreciate to receive them every one or two days.

Assignment 5: Notification

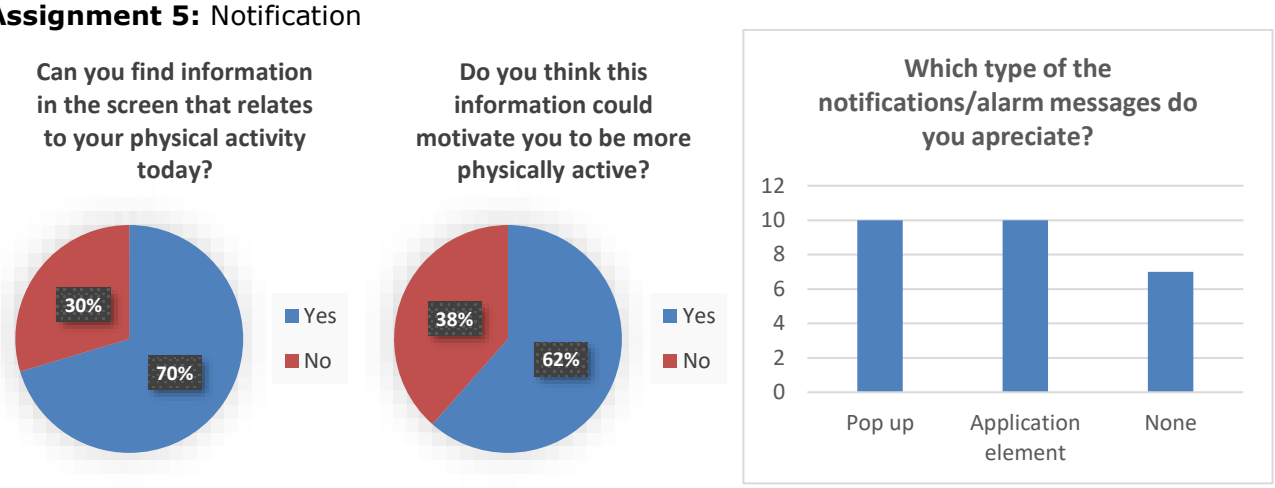


Figure 28 – Opinions about notification messages

As regards to notifications, Figure 28 shows that 70% of the respondents can find information in the screen that relates to their physical activity on this day. Most of the respondents (62%) think that this information could motivate them to be more physically active. When asked about which type of the notifications/alarm messages they appreciate, one half of the respondents would prefer "pop-ups", the other half "messages in application boxes" already shown in the screen.

After completion of the tasks, participants were inquired about their perception of the tasks' difficulty and answered the SUS and NASA-TLX questionnaires.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

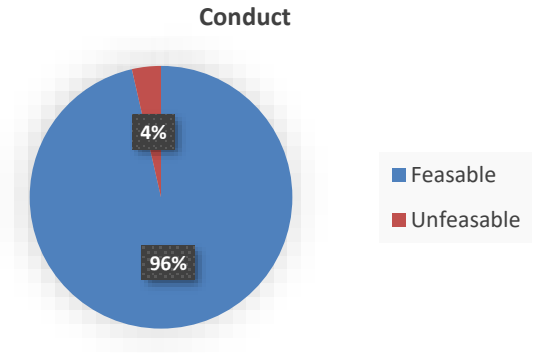
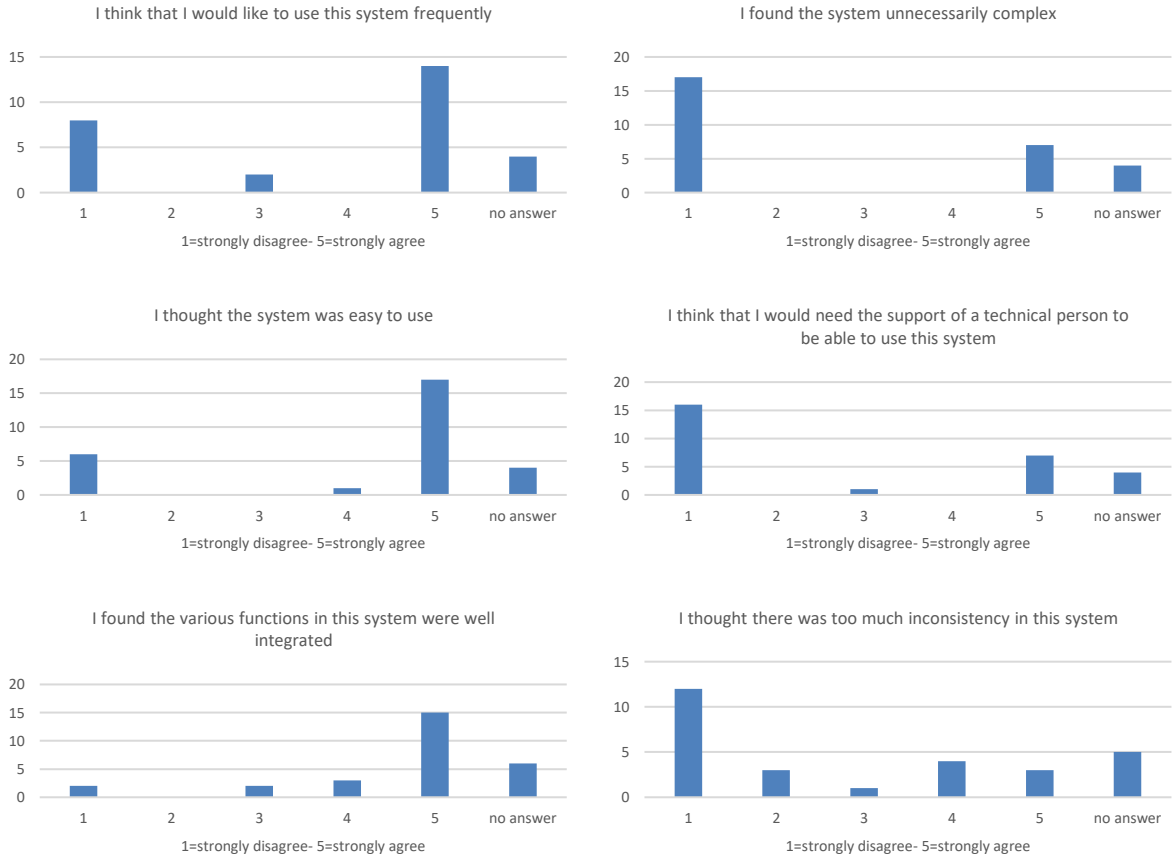


Figure 29 – Participants overall perception of the tasks feasibility

About 96% of all respondents considered the tasks as feasible whereas 4% of the interviewed persons considered them as too difficult (Figure 29).

The answers to the individual SUS questions are presented in Figure 30.



The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

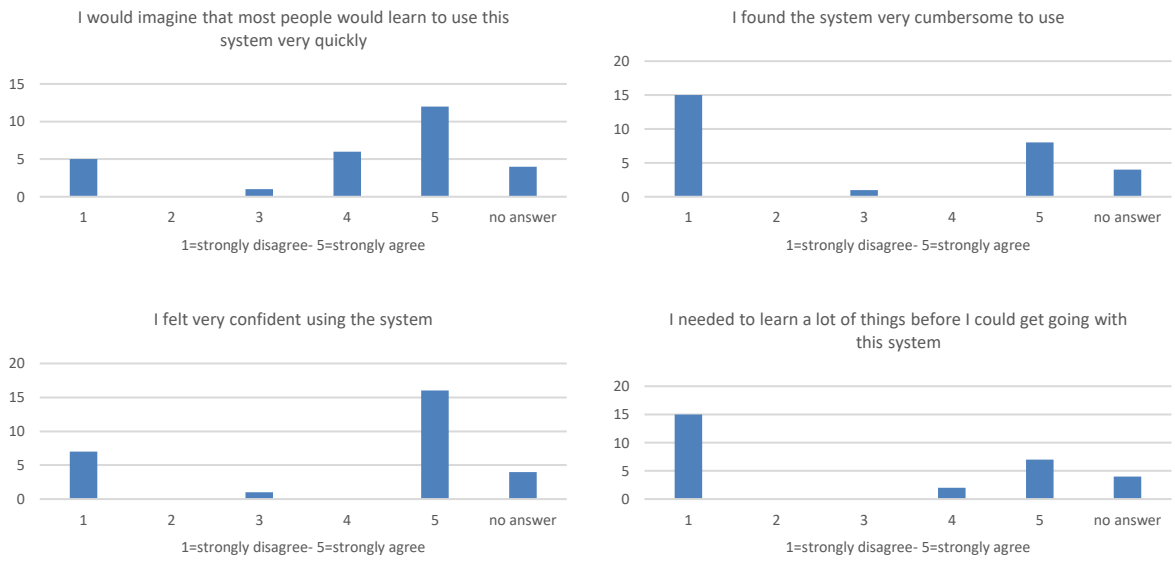


Figure 30 – Individual SUS answers

The results in Figure 30 show that most of the respondents would like to use this system frequently. The reasons for this are the easy handling, the lack of complexity and the well-integrated various functions. Consequently, the respondents felt very confident in using this system. The majority of the respondents could imagine that most people would learn to use this system very quickly, as they did not need to learn a lot of things before they could get going. The average SUS score for all the participants that answered the 10 questions was 75, which is above to the overall average SUS score value, which is 68. This means that this the Remote Assistant application is not only usable, but already enjoyable to its users.

The individual items of the NASA-TLX questionnaire are presented in Figure 31.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

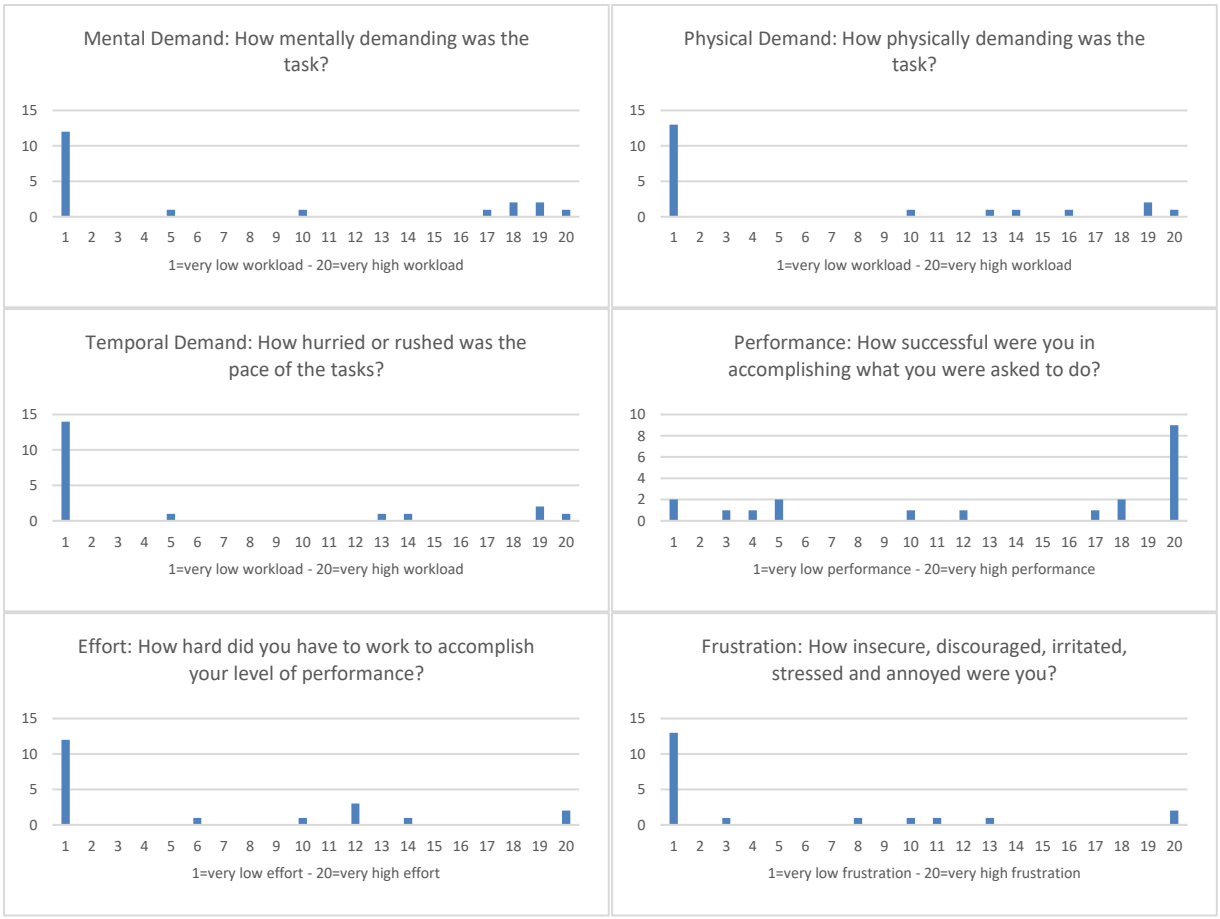


Figure 31 – Answers to individual items of the NASA-TLX questionnaire

The mental and physical demand was mostly considered as very low during the survey. The respondents did not feel hurried or rushed, concerning the pace of the tasks and felt very successful in accomplishing what they were asked to do. As a result, the level of insecurity, discouragement, irritation, stress and annoyance was very low.
The overall raw (non-weighted) NASA-TLX score was 30,3, which is on the low end of the scale, representing a low requested workload. While this is the overall tendency, it is important to point out that some of the respondents scored very high in the workload scale. Measures should be taken to understand what are the problems that these specific participants identified.

4.1.4 Rule Editor

Assignment 1: Rule with simple trigger
Instruction 1: For the sake of the test create a rule to turn on the living room lights when you are inside the living room. Save the rule.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

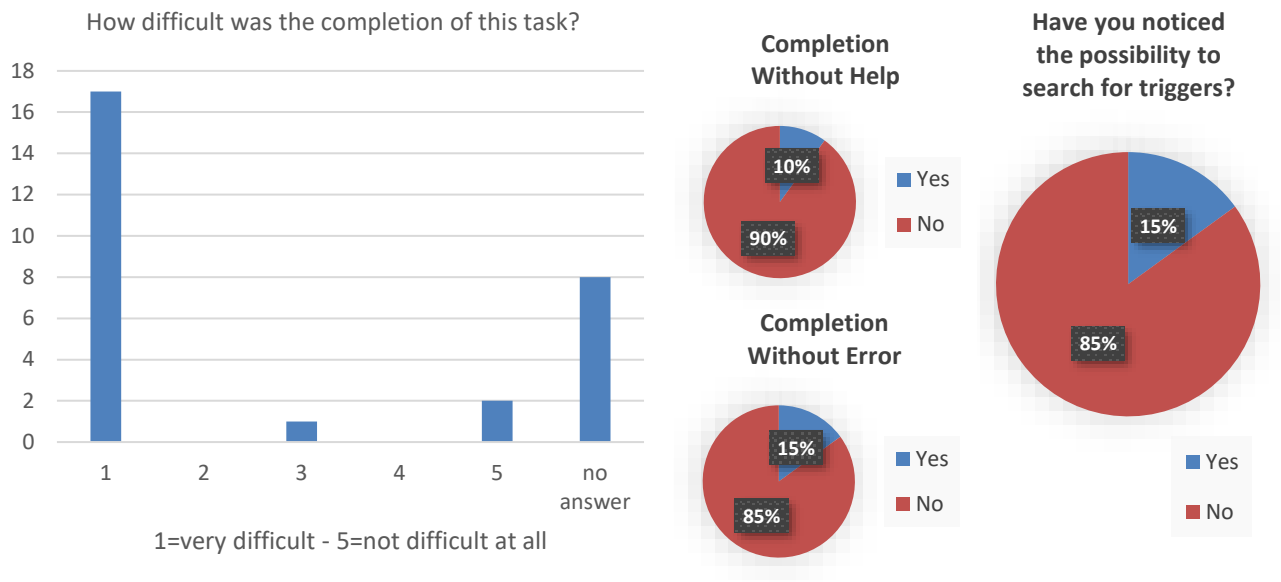


Figure 32 – Difficulty perceived, completion ratio and search awareness in the rule creation process

After the first instruction, the interviewees were asked how difficult the completion of the task was (Figure 32). A clear majority (17 interviewed persons) reported that the task was very difficult. Only 2 persons rated the task as not difficult at all. During the completion of the task, 90% needed help with the navigation. At the same time, the error rate was very high, as 85% of the respondents could not complete the task without errors. It turned out that the participants did not notice the possibility to search for triggers. Moreover, one respondent noted that the display is very confusing.

Instruction 2: Create a rule to turn on the TV when you enter the living room. Save the rule.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

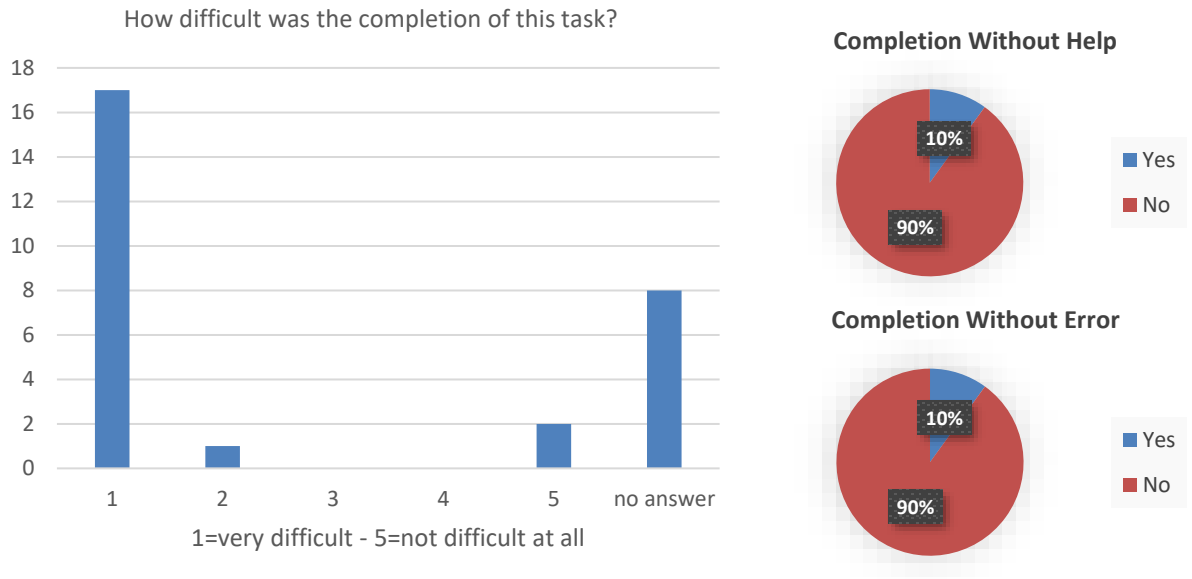


Figure 33 – Difficulty perceived and completion ratio in the second rule creation task

As indicated in Figure 33 the result after the second instruction was very similar to the first instruction. The majority of the respondents rated this task again as very difficult (17 persons). One respondent considered the task as not motivating at all. Again, only 2 persons rated the task as not difficult at all. About 90% of the interviewees needed help with the completion of the task and only 10% could complete it without error.

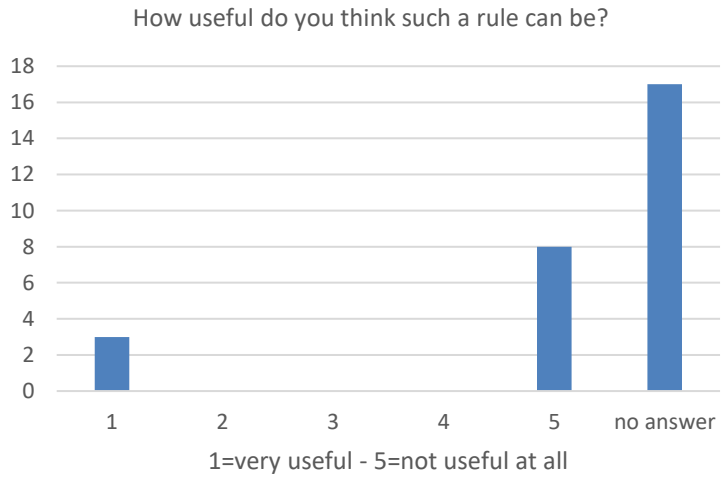


Figure 34 – Perceived usefulness of rule creation

Finally, the respondents were asked how useful they think such a rule can be (Figure 34). As can be derived from the chart, the majority of the test persons did not express any opinion. The ones that did were polarized. Eight found the rule not useful at all, while 3 found the rule very

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

useful. This might be more a representation of their likeability for the specific action, than for the rule creation process itself.

Assignment 2: Simulator
Instruction: Use the simulator to check whether the rules you created work correctly

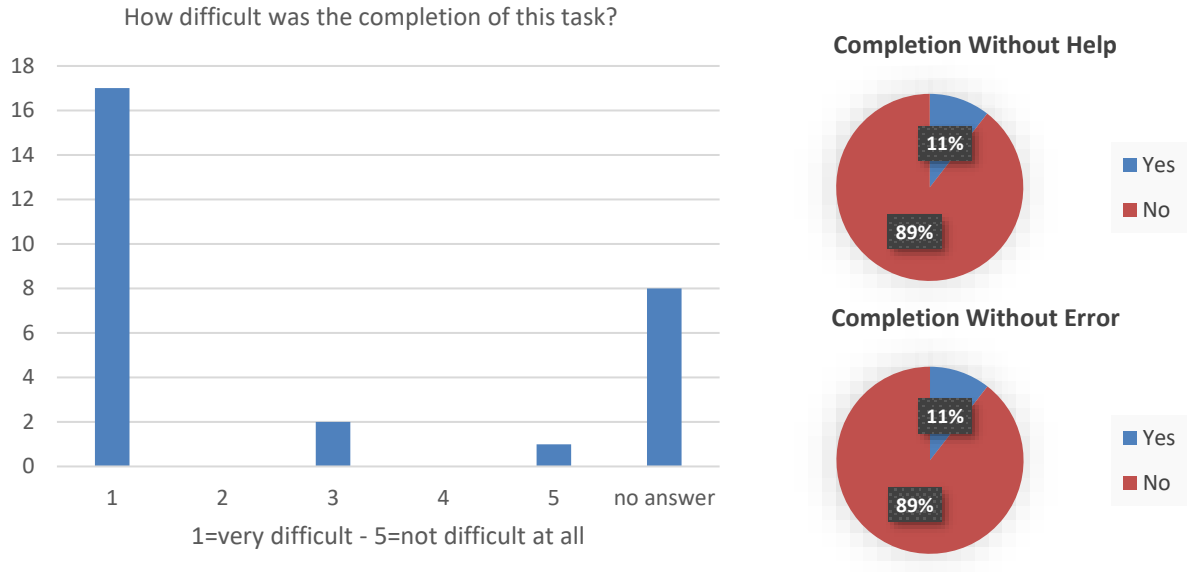


Figure 35 – Difficulty perceived and completion ration of the simulator task

Figure 35 shows that the completion of the task was very difficult for the participants. The majority of 17 interviewed persons found it very difficult. For two persons, the level of difficulty was not too high. Only one person considered the task as not difficult at all. With 89% in each case, the respondents needed nearly as much assistance as in assignment 1.

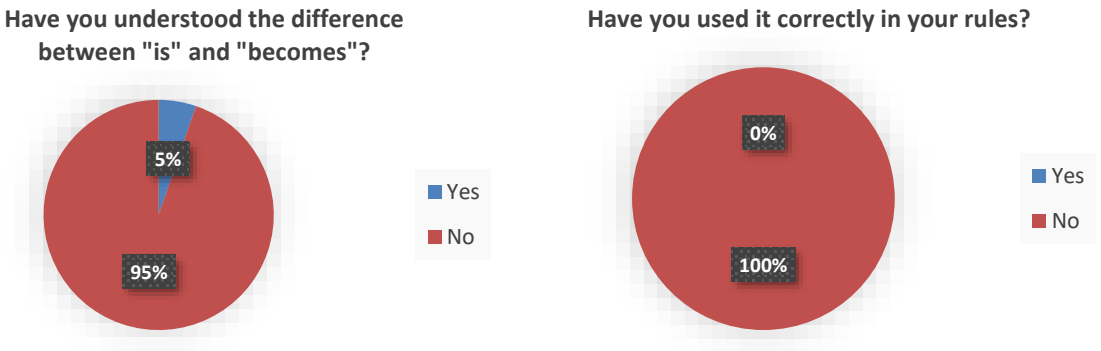


Figure 36 – Correct understanding and usage of "is" and "becomes"

When asked about the difference between "is" and "becomes", it turned out that 95% did not understood the difference (Figure 36). After being explained about the correct difference between "is" and "becomes", all users concluded that they haven't used it correctly in the rules.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 3: Interface rules
Instruction 1: For the sake of the test, create a rule that increases the font size when the user is outside the home. Save the rule.

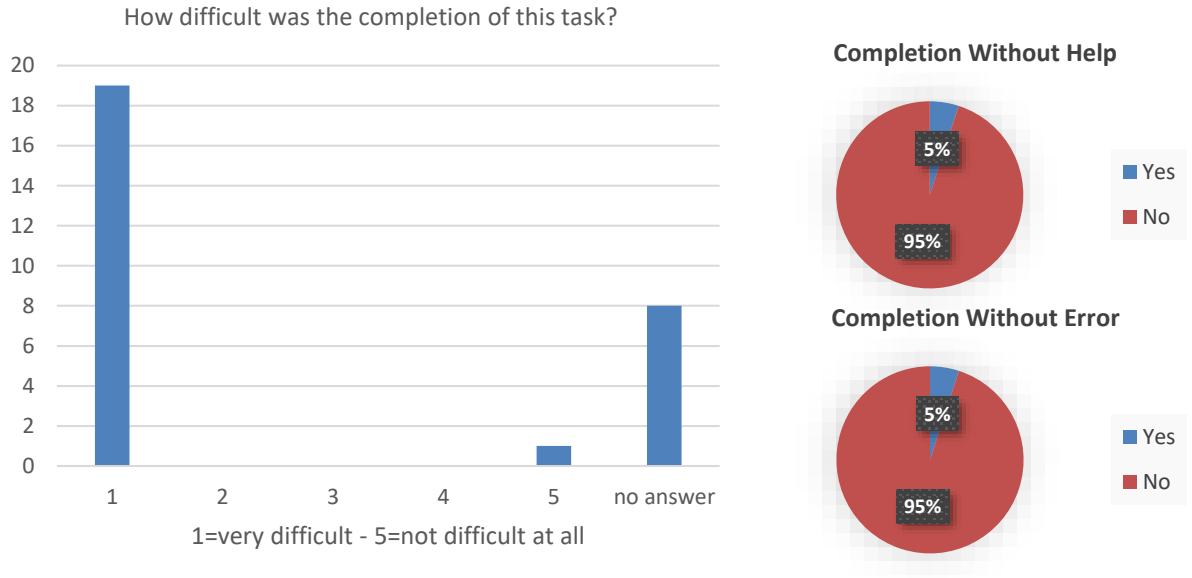


Figure 37 – Difficulty perceived and completion ratio of complex rule creation

The respondents were again asked about the difficulty about the completion of the task, which was again too complicated for the interviewed persons (Figure 37). Similar to the results of the assignments 1 and 2, the majority of 19 persons considered the task as too complicated. Only one person considered the task as not difficult at all. Accordingly, 95% of the respondents could not complete the task without help and errors.

Instruction 2: Go back to the Remote Monitoring Application. Imagine now that you are seeing the application in a tablet and you go outside your home. [Moderator triggers rule to change the font size, increasing it from 16px to 21px, a 30% increase]

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

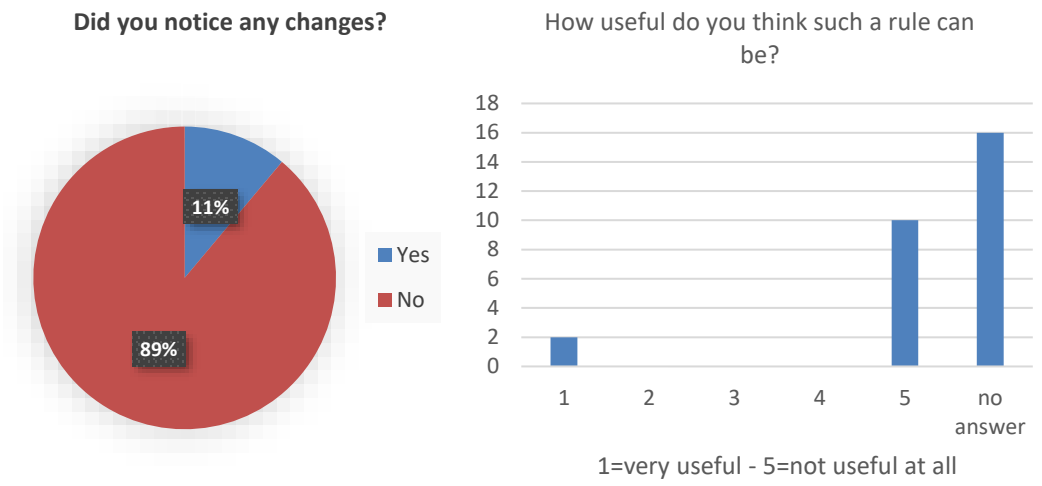


Figure 38 – Visibility and usefulness of automatically changing font size

As indicated in (Figure 38), a majority of 89% of the respondents did not notice any changes. Apart from 16 abstentions, the majority of 10 respondents considered such a rule as not useful at all. A minority of 2 persons rated it as useful.

After completion of the tasks, participants were inquired about their perception of the tasks' difficulty and answered the SUS and NASA-TLX questionnaires.

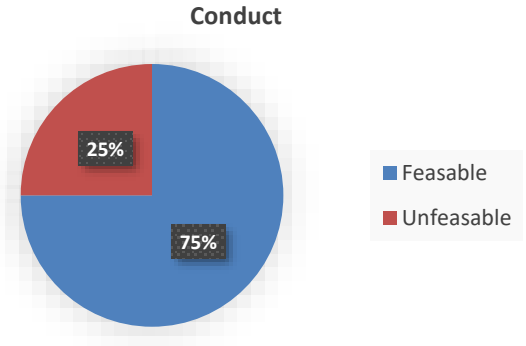


Figure 39 - Participants overall perception of the tasks feasibility

Three quarters of all respondents considered that the tasks are feasible whereas 25% of the interviewed persons considered them as too difficult (Figure 39). These results are not aligned with the results observed in individual tasks.

The answers to the individual SUS questions are presented in Figure 40.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

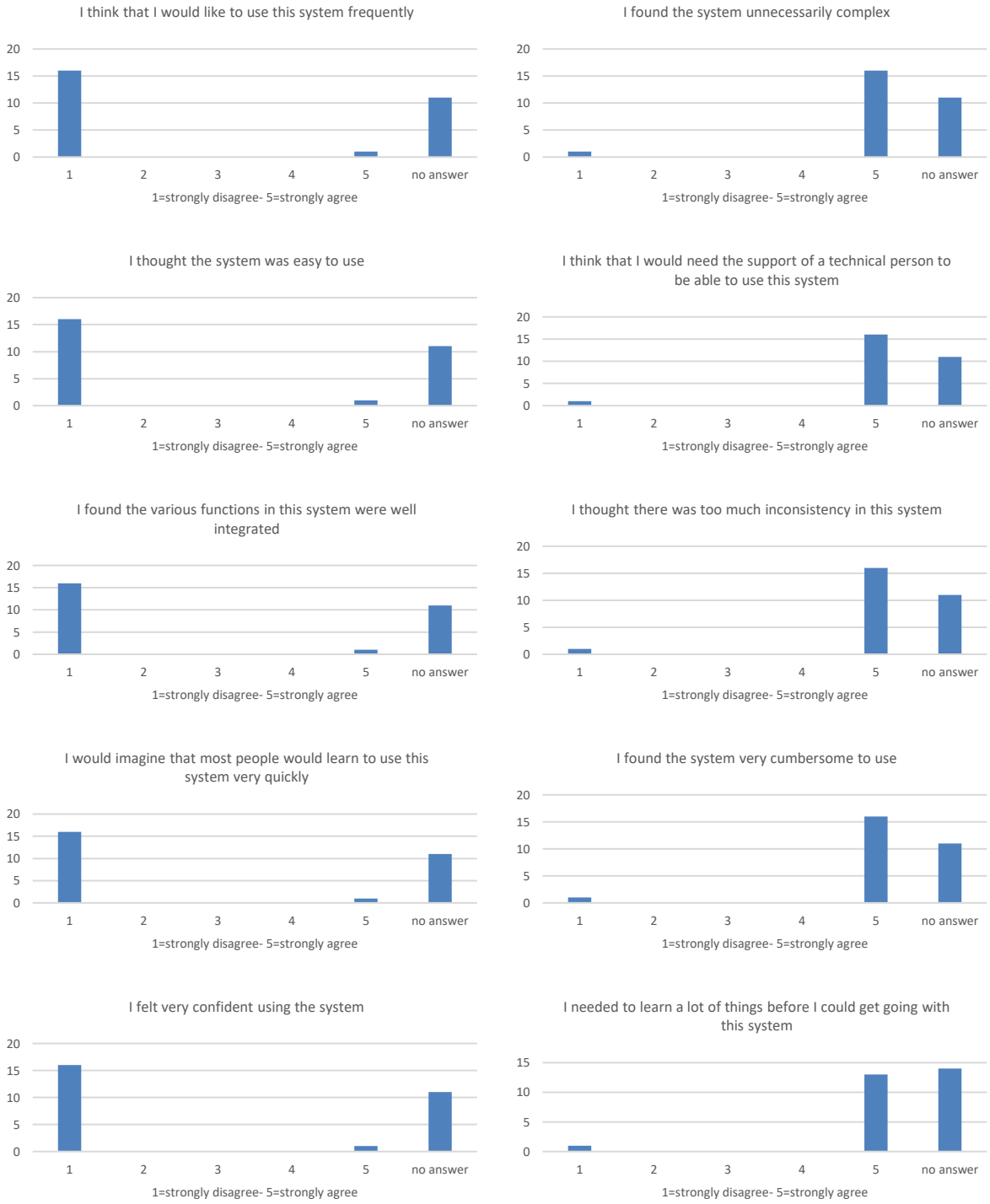


Figure 40 – Individual SUS answers

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The results in Figure 40 show that there is a need of improvement for the application in the opinion of this group of participants. The willingness to use the system is very low, due to an unnecessarily complexity. As a consequence, the participants of the survey think that they would need the support of a technical person to be able to use this system. The respondents felt very unconfident using the system, as the functions are not well integrated. Another important reason lies in the inconsistency of the system as can be seen in the answers to the sixth question. Finally, the interviewed persons felt that they need to learn a lot before they could get going with this system.
The average SUS score for all the participants that answered the 10 questions was 7, which is very low compared to the overall average SUS score value, which is 68. This means that this the Rule Editor in its current state, is not usable by these participants.

The individual items of the NASA-TLX questionnaire are presented in Figure 41.

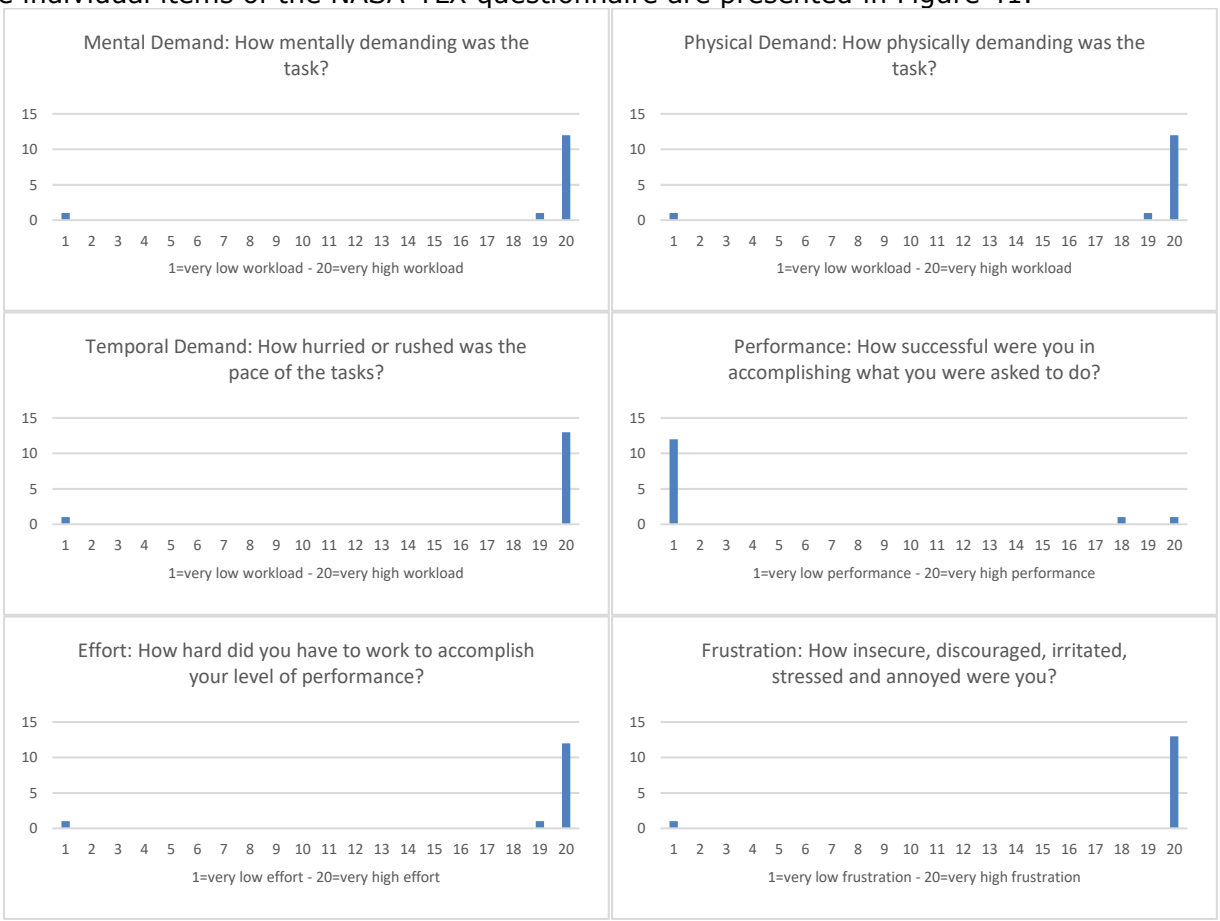


Figure 41 – Answers to individual items of the NASA-TLX questionnaire

As regards the evaluation of workload, the mental and physical demand was considered as very high during the survey. The respondents had to work hard to accomplish the level of performance. Accordingly, the respondents felt very insecure, discouraged, irritated, stressed and annoyed during the completion of the tasks. The reasons for this lie in the failure of

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

accomplishing of what they were asked to do and in the feeling of stress due to a high pace of the tasks. As a consequence, usability and simplicity in handling were claimed for the overall usage.
The overall raw (non-weighted) NASA-TLX score was 92, which is on the high end of the scale, representing a high requested workload. This result is well aligned with the SUS questionnaire findings.

4.2 Norwegian Tests

4.2.1 Participants

Following the same protocol that was applied in Switzerland, all respondents of the survey were asked for basic characteristics such as gender, age and personal health condition.

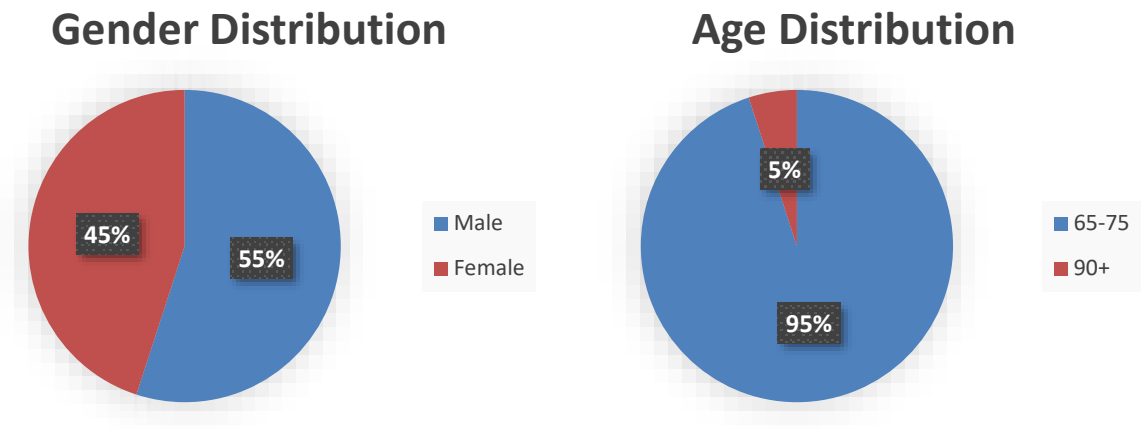


Figure 42 – Gender (left) and age (right) distributions of the participants in the Norwegian tests

Almost all the respondents can be found in the age group of 65-75 years (95%). A single participant belonged to 90+ group. None of the respondents is younger than 65 years old (Figure 42 - right). Regarding gender (Figure 42 - left), the distribution was balanced. 55% of the respondents were male, 45% female.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

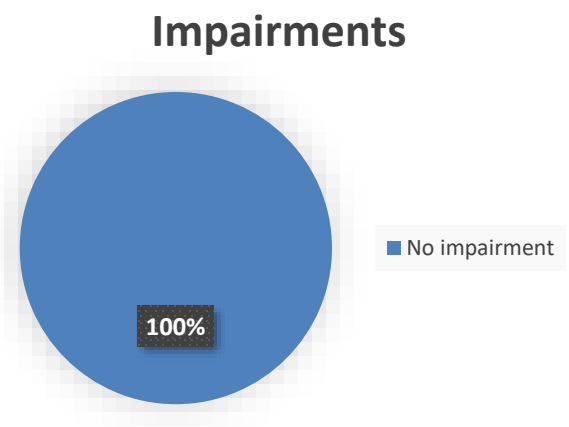


Figure 43 – Impairment distribution of the participants in the Norwegian test

When asked about health condition, all the participants reported that they do not suffer from any impairments (Figure 43).

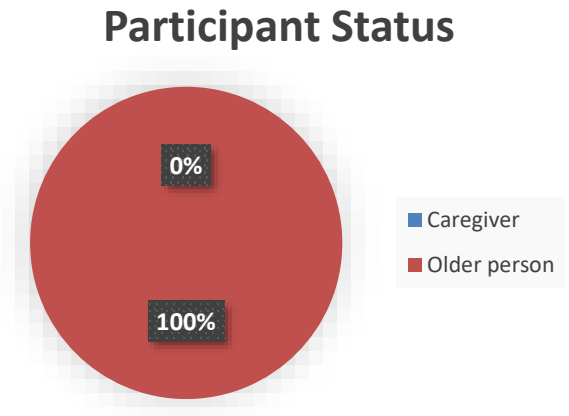


Figure 44 – Status of the participants in the Norwegian test

All the participants from Norway characterized themselves as older adults, without a caregiver role (Figure 44).

4.2.2 Medication Monitoring Application

Assignment 1: Authentication - Look at the screen on the tablet/computer, and follow the instructions to log in to an account.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

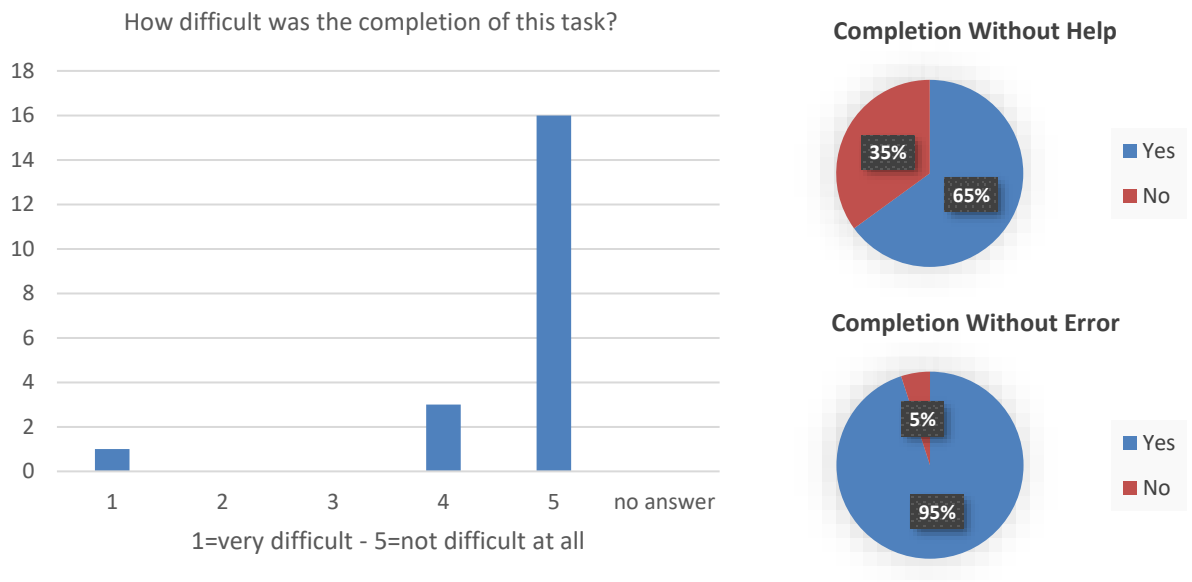


Figure 45 – Difficulty perceived and completion ratio for the authentication task

After the first instruction, the interviewees were asked how difficult the completion of the task was (Figure 45). Most of the respondents reported that the completion of the task was not difficult (19 interviewed persons), whereas only one reported that the task was difficult. This participant could not find the place to write the password in the log-in screen, because it required scrolling.

Assignment 2: Create Medication
Instruction 1: Enter the following medication: Cozaar (medication for high blood pressure), one pill to take once a day in the mornings until the end of the year. Set a time that typically would be convenient for you in the morning, before or after breakfast, when you typically will be in your house/apartment.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

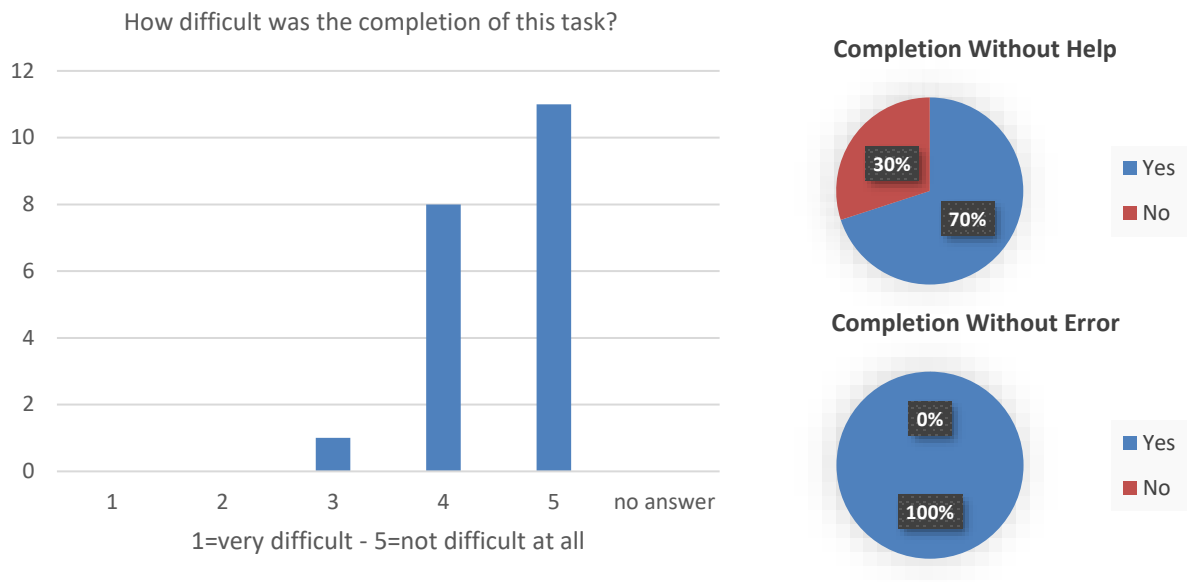


Figure 46 – Difficulty perceived and completion ration for first medication entered

As can be seen in Figure 46, for most of the respondents the completion of the task was not difficult (19 interviewed persons), with only one participant characterizing it as neither easy nor difficult. Almost three quarters (70%) of the participants completed the task without help. The respondents who had problems noted that some symbols used are not logical, and the clock and the form should allow for more flexibility.

Instruction 2: Enter the following medication: Calcium-Sandoz (for osteoporosis), pill dissolved in a glass of water, taken in the evenings, also until the end of the year. Set a time that typically would be convenient for you in the evening.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

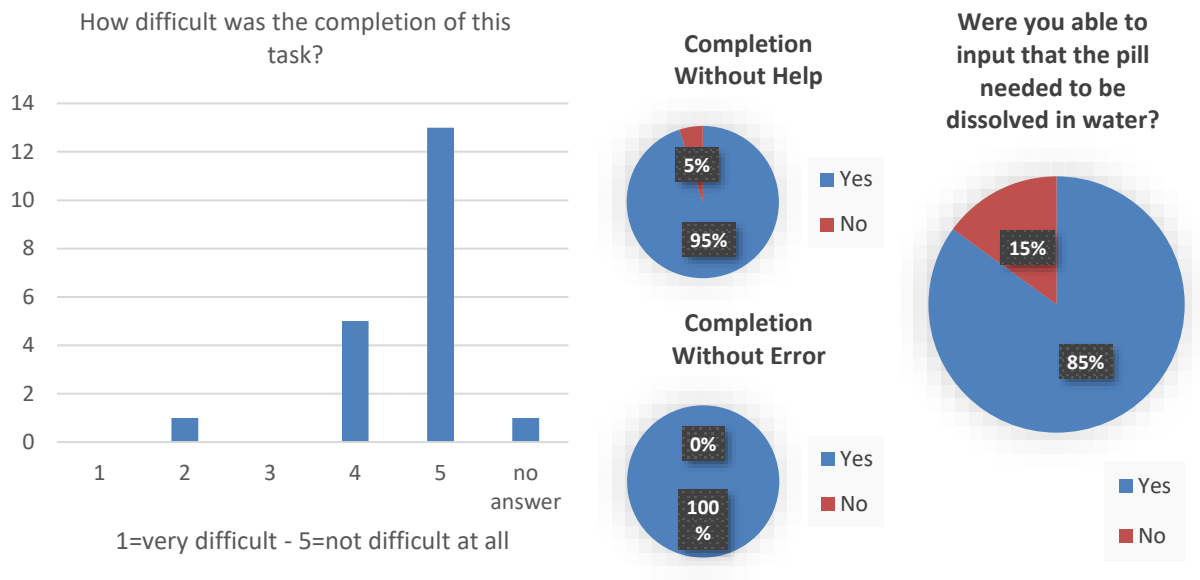


Figure 47 – Difficulty perceived and completion ratio for the 2nd medication entered

Figure 47 shows that the majority of the respondents (18 interviewed persons) think that they can complete the task without any difficulties, while for 1 respondent the completion was difficult although no help was required for successful completion. When asked if they were able to input that the pill needed to be dissolved in water, about 85% answered this question with "yes".

Assignment 3: Calendar - Go to the Calendar and find the date one month from now

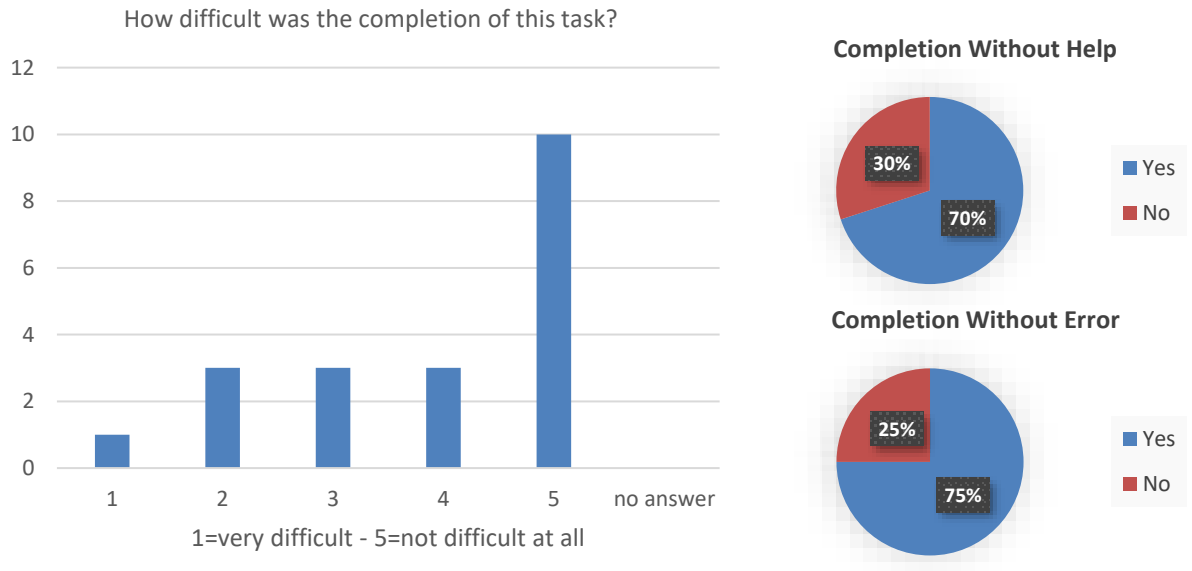


Figure 48 – Difficulty perceived and completion ratio for the calendar task

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

As shown in Figure 48 the majority of the respondents rated this task again as not difficult (13 persons) while 4 persons rated the task as difficult, with 3 respondents who answered neutral. About 30% of the interviewees needed help with the completion of the task and 75% could complete it without error.

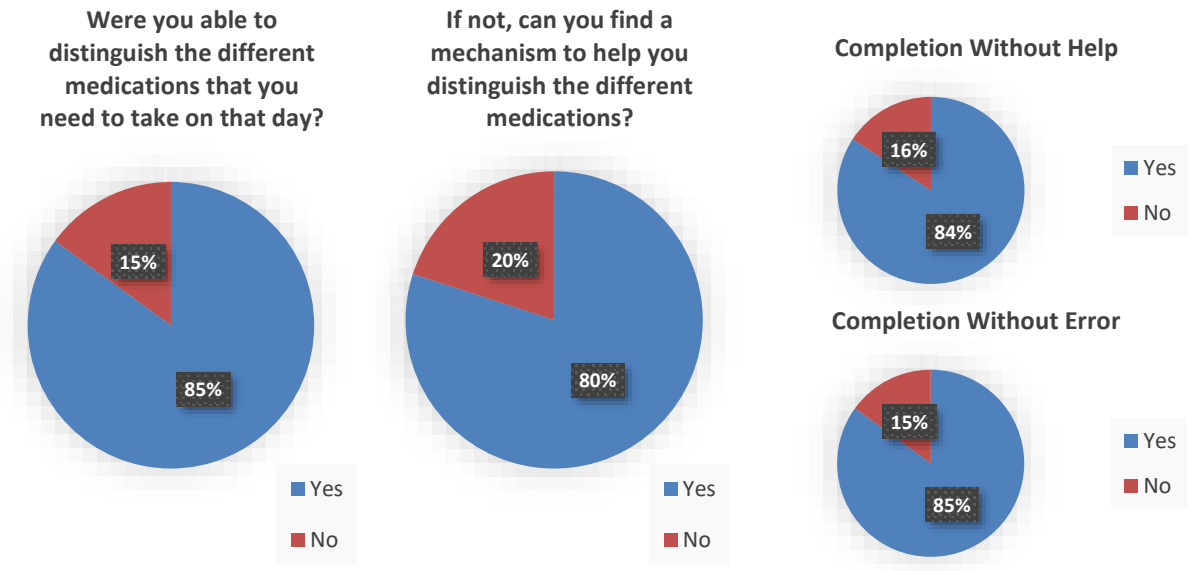


Figure 49 – Calendar usability and completion ratio

When asked if they can distinguish the different medications that they need to take on that day, most respondents answered with "yes" (85%) as seen in Figure 49. With the following question, most of the respondents who were not able to distinguish the different medications were able to find a mechanism to help themselves. About 84% of the interviewed persons did not need help and 85% completed the tasks without error.

Assignment 4: Editing Medication & Notification

Instruction 1: Set a new time to take Cozaar, 3 minutes from now

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

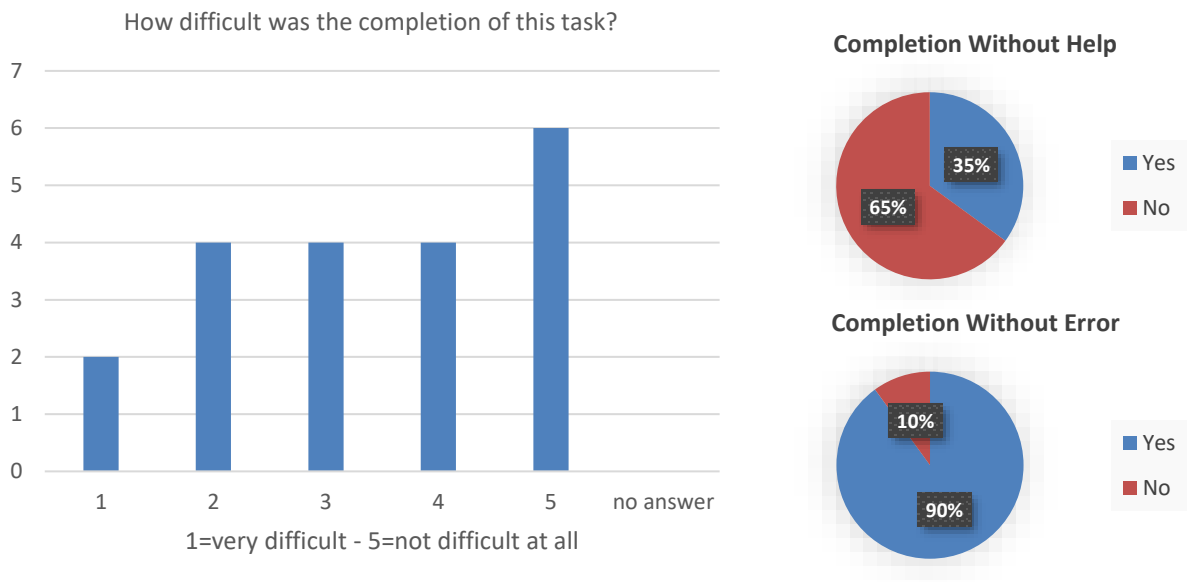


Figure 50 – Difficulty and completion ratio for the update medication task

For the majority, the completion of this task was not difficult at all (10 respondents), whereas 6 respondents had problems with the completion of the task (Figure 50). Four interviewed persons answered neutral. More than half of the respondents (65%) could not complete the task without help, but 90% could complete the task without errors.

Instruction 2: Wait until the notifications pop up on the screen, and press "OK" for taking the medication.

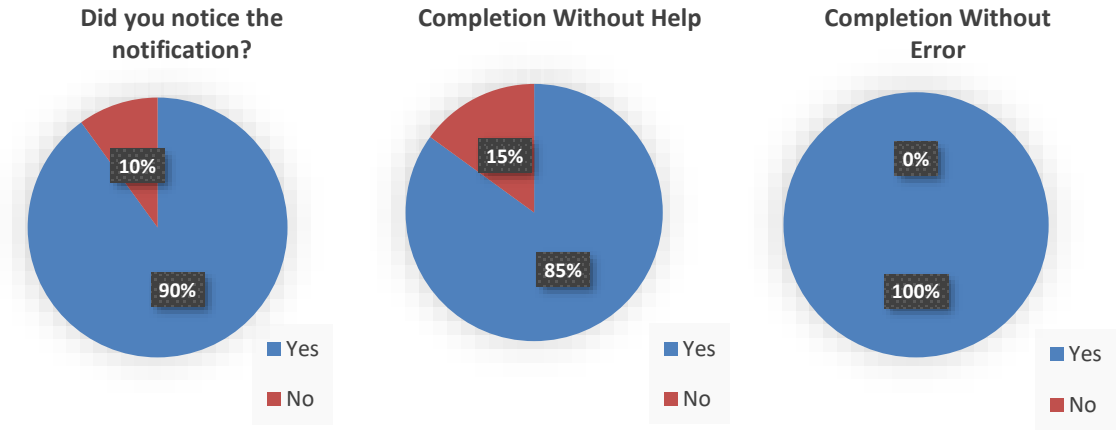


Figure 51 – Notifications awareness and task completion ratio

As shown in Figure 51, most of the respondents did notice the notification (90%). For accomplishing this task, most of the respondents didn't need assistance (85%) and all could complete the task without error.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 5: Medication status - Go back to the initial screen? Please report which medication you have already taken and which medication you still need to take today.

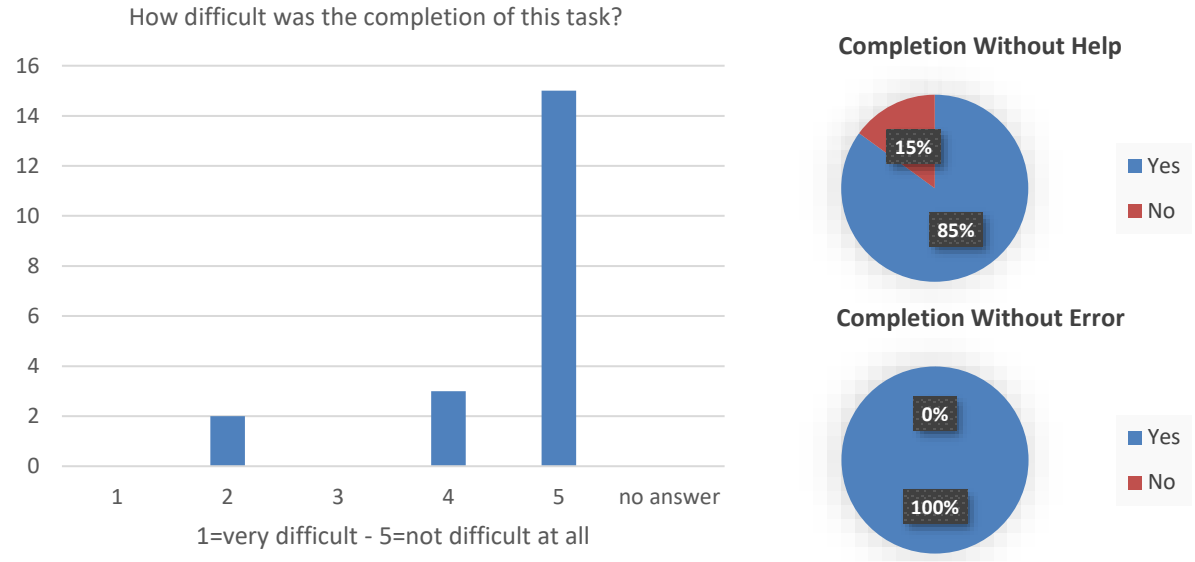


Figure 52 – Difficulty perceived and completion ration for medication awareness

When asked to report which medication they have already taken and which medication they still need to take on this day, most respondents (18) rated this task at not difficult at all (Figure 52). Only 2 respondents had difficulties, mentioning that the feature was not intuitive. To accomplish this task, 85% did not need help and all could complete it without error.

Assignment 6: Logging out – Log out from the application

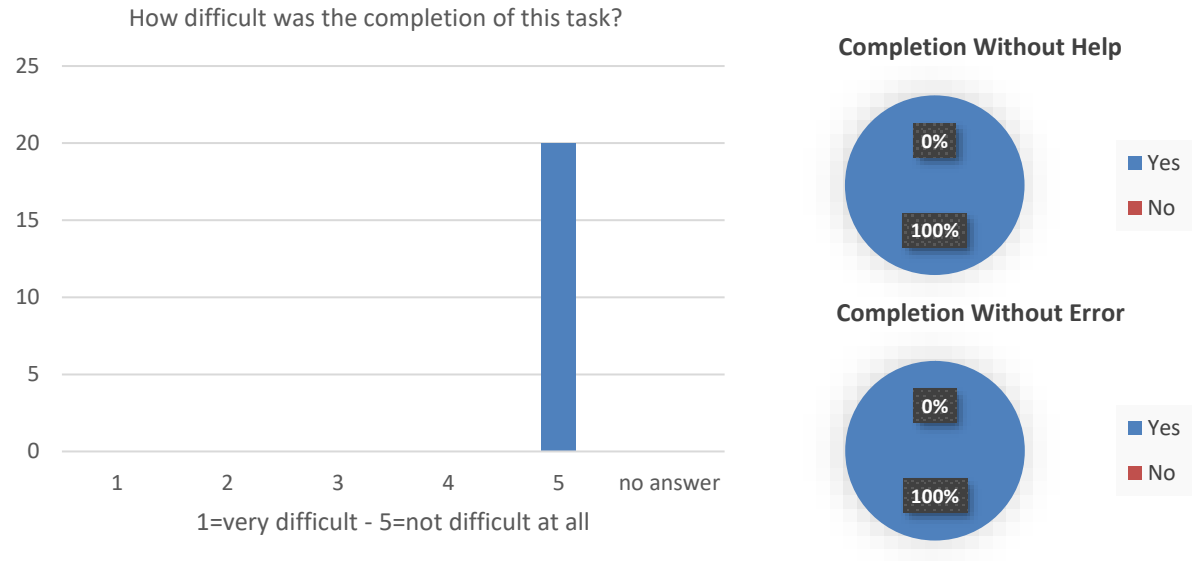
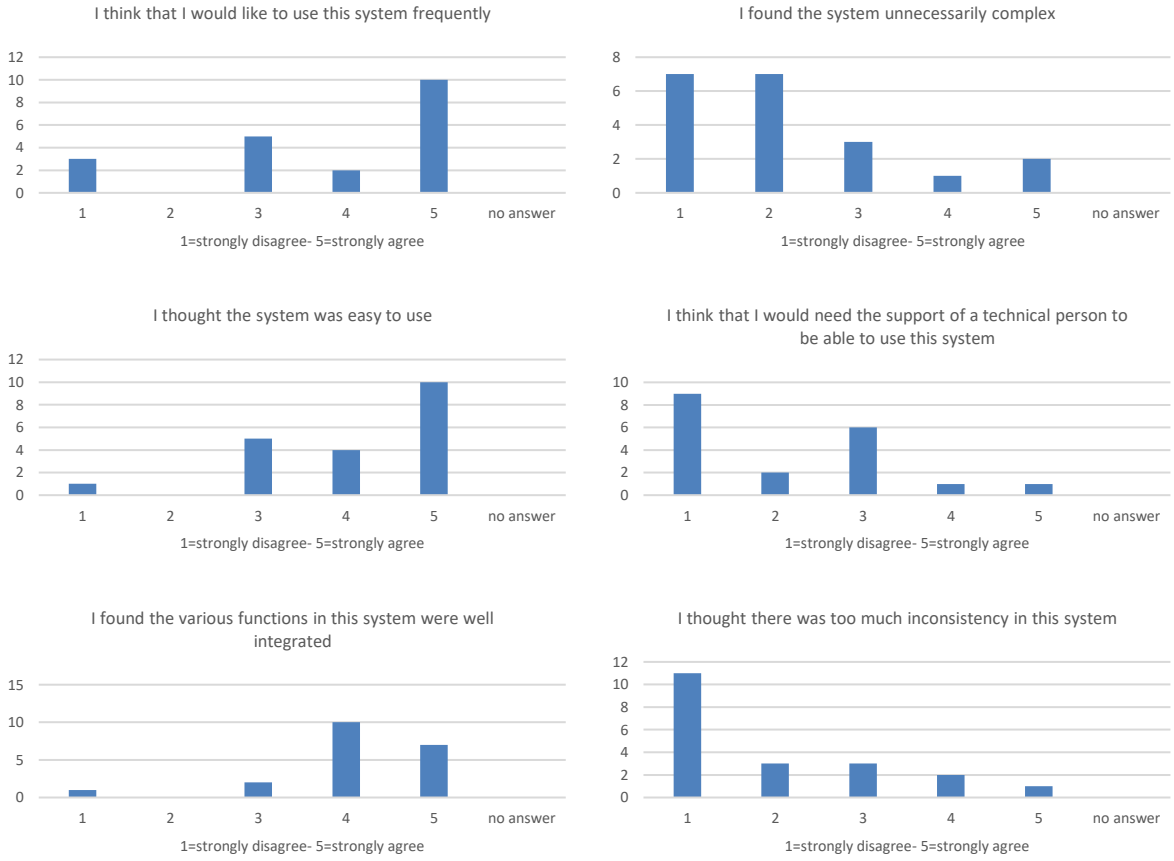


Figure 53 – Difficulty perceived and completion ratio for the logout task

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

As regard to logging out from the application, all respondents had no difficulties with the completion of this task (Figure 53).

After completion of the tasks, participants answered the SUS and NASA-TLX questionnaires. The answers to the individual SUS questions are presented in Figure 54.



The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

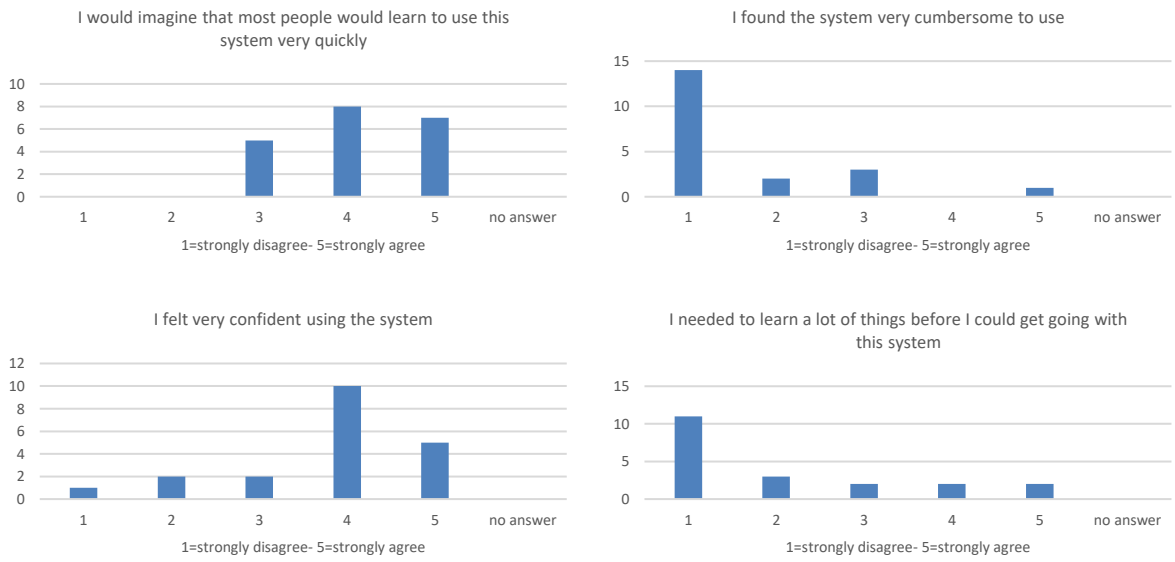


Figure 54 – Individual SUS answers

The results show that most of the opinions concerning this system are positive. Respondents found the system easy to use and would like to use a system such as this frequently. They don't anticipate problems in learning to use the system, neither do they think a lot of previous knowledge or assistance is required. Overall, they felt confident using this system, rating its complexity as low.
The average SUS score for all the participants that answered the 10 questions was 75, which is higher than the overall average SUS score value, which is 68. This means that participants found this to be an already usable and enjoyable application.

The individual items of the NASA-TLX questionnaire are presented in Figure 55.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

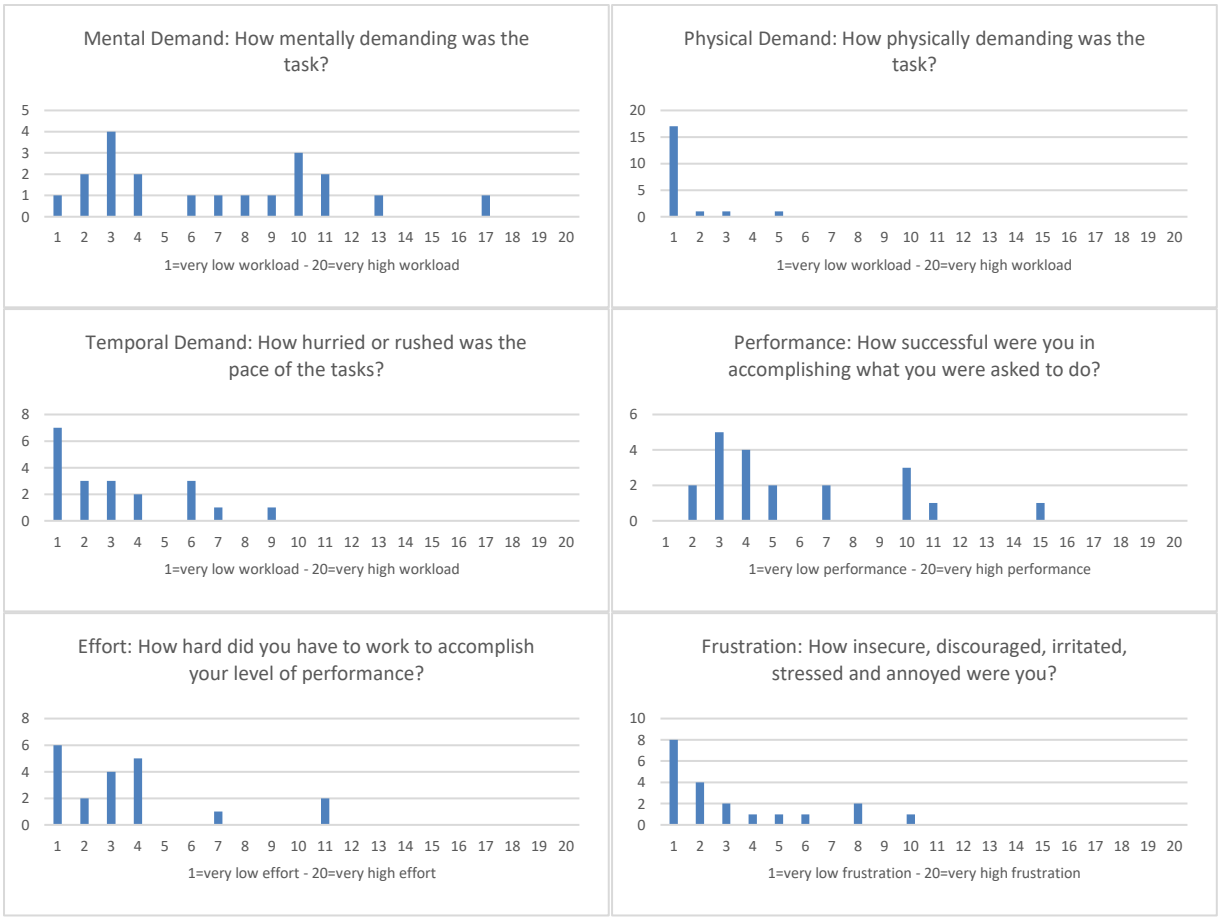


Figure 55 – Answers to individual items of the NASA-TLX questionnaire

Generally, all participants rated the demands and effort required to use the task as low and very low. The respondents did not feel hurried or rushed, concerning the pace of the tasks and felt very successful in accomplishing what they were asked to do. As a result, the level of insecurity, discouragement, irritation, stress and annoyance was very low.
The overall raw (non-weighted) NASA-TLX score was 27,9, which is on the low end of the scale, representing a low requested workload. This was the regular tendency across all participants. It is interesting to notice that while all effort related scores were consistently low, performance was also scored low, which was unexpected. It might be explained by the fact that most participants required assistance at least one time, together with a Norwegian attitude of not considering themselves above others.

4.2.3 Remote Assistant Application

Assignment 1: Authentication - Look at the screen on the tablet/computer, and follow the instructions to log in to an account with the following details

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

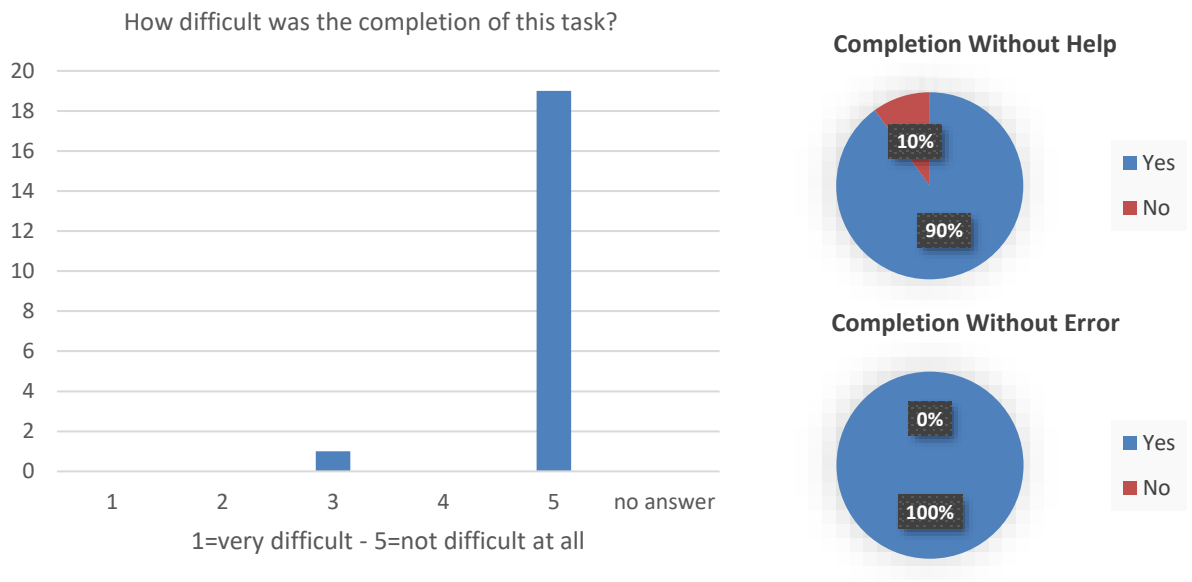


Figure 56 – Difficulty perceived and completion ratio for authentication task

After the first instruction, the interviewees were asked how difficult the completion of the task was (Figure 17). 19 interviewed persons considered the task as not difficult at all. Most of the respondents (90%) could complete the task without help but all made at least one mistake while attempting to log in. The most common mistake was pressing a line next to the password label in an attempt to find the entry box.

Assignment 2: Survey - Please find the survey and answer the questions

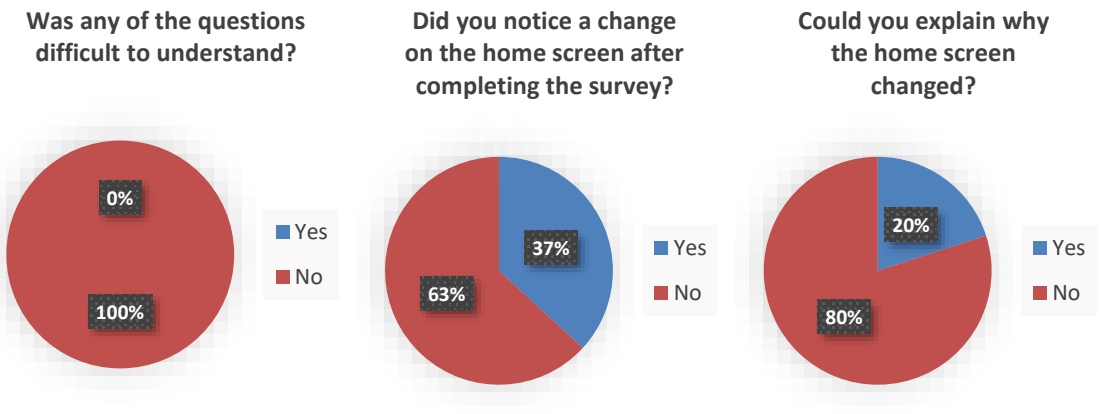


Figure 57 – Participants perceptions about the survey

As can be derived from Figure 57, the respondents had no problems understanding the questions in the survey. A majority of 67% did not notice a change on the home screen after completing the survey. Additionally, only 20% could offer an explanation for why the home screen changed.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

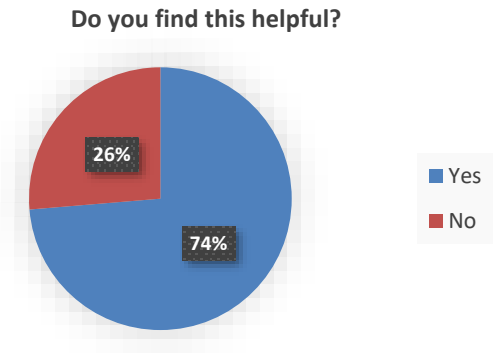


Figure 58 – Perceived usefulness of the survey and its effects

As regards to the question if this is considered as helpful, 74% of the respondents answered with "yes". The respondents who answered positive commented it was positive to have an overview of their health and that hiding some boxes results in a less cluttered interface. The respondents who answered with "no" (26%) mentioned that they would like to choose themselves what to hide, and that it should adapt to changing situations.

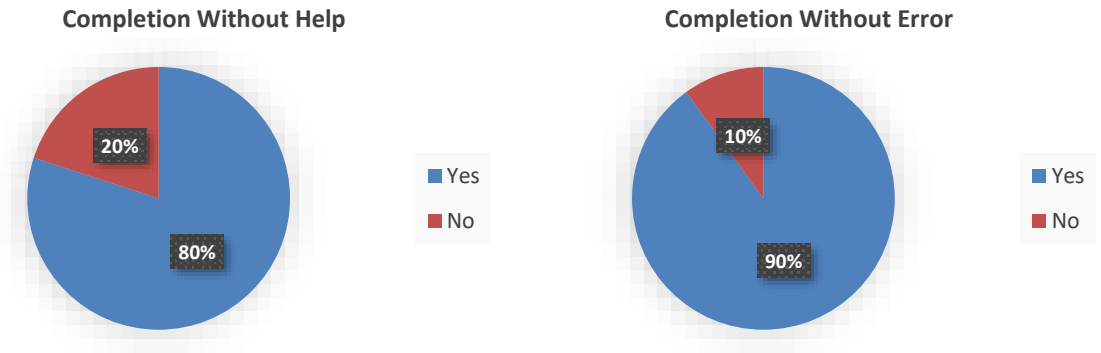


Figure 59 – Completion ratio of the survey task

As shown in Figure 59, most of the interviewed persons (80%) did not need help. Similarly, 90% of the respondents could complete it without error.

Assignment 3: Plan Screen
Instruction 1: For the sake of the test, set up your weekly goals as 60 minutes of exercise, walking 20.000 steps and meeting more than 5 people

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

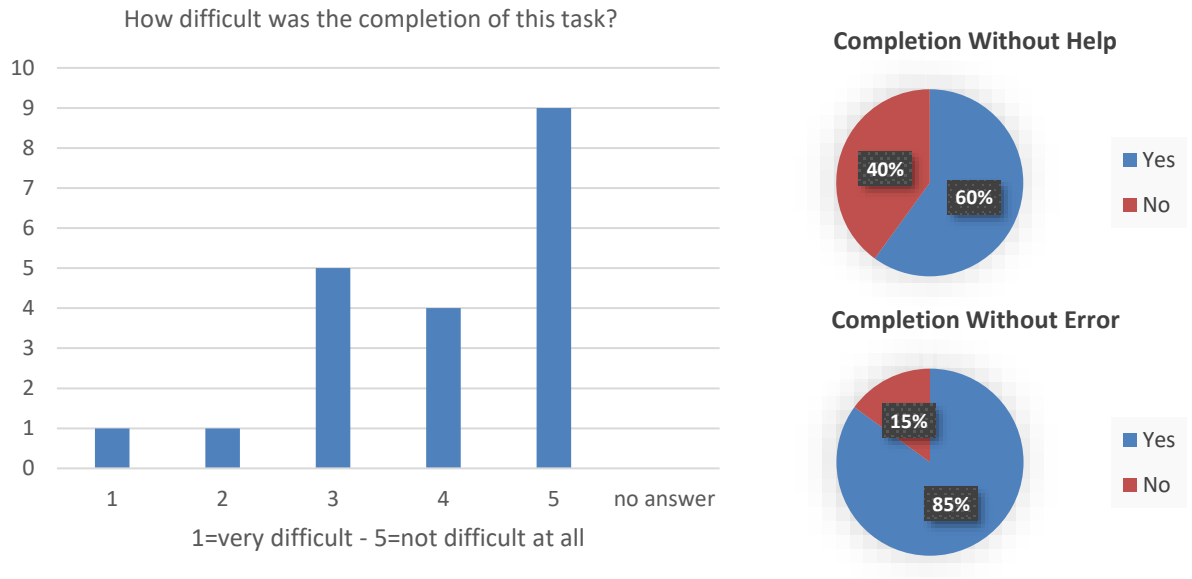


Figure 60 – Difficulty perceived and completion ratio for the planning task

Figure 60 shows that the completion of the task was not very difficult for most of the respondents (13). However, for 2 interviewed persons, it was difficult. A bit more than half of the respondents could complete the task without help (60%) and 85% without error.

Instruction 2: Report that you have worked out 30 minutes yesterday

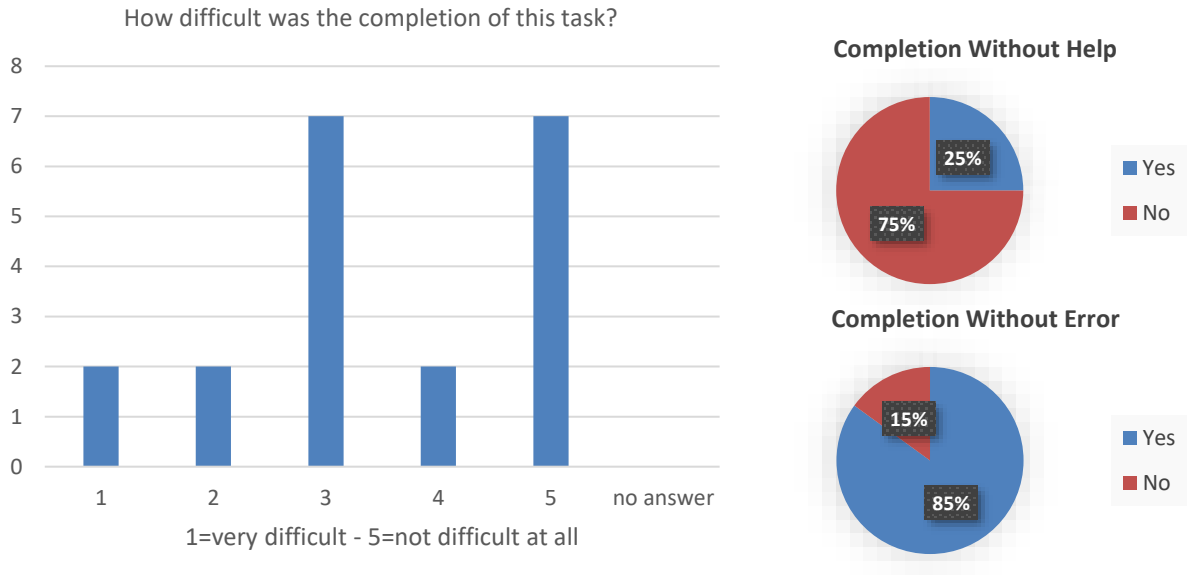


Figure 61 – Difficulty perceived and completion ratio for the reporting task

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

For the majority, the completion of this task was not difficult at all (9 respondents). Only for 4 interviewed persons, the task seemed to be difficult to complete, with 7 considering it neither easy nor difficult (Figure 61).

Instruction 3: Plan to walk 4000 steps tomorrow

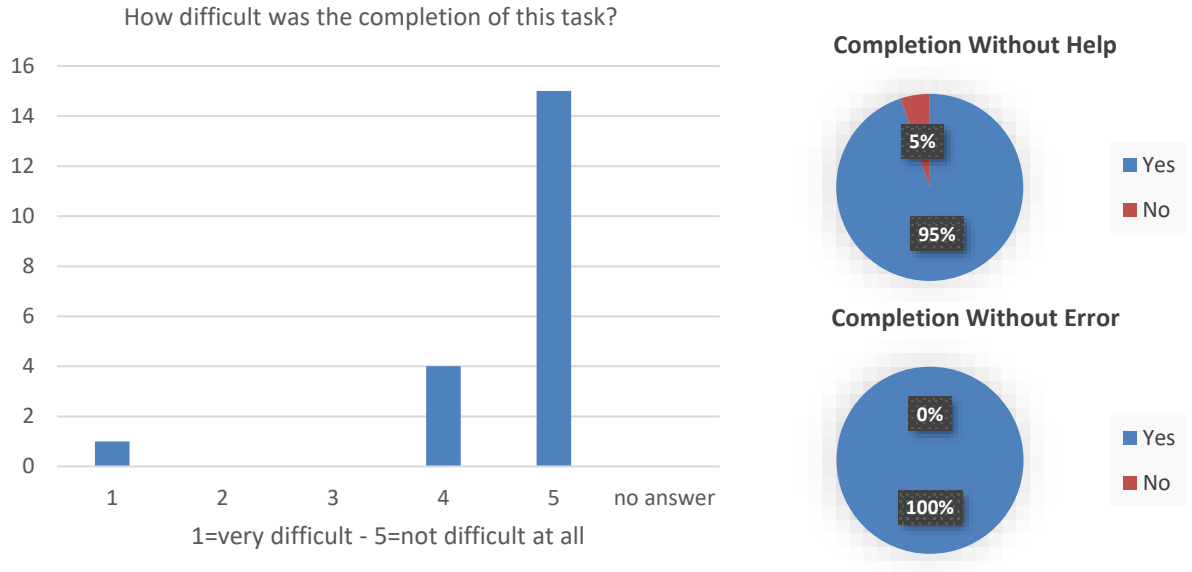


Figure 62 – Difficulty perceived and completion ratio for the second planning task

As can be derived from Figure 62, the opinions of the respondents are consistent. Most of the respondents considered the completion of the task not difficult at all (19 interviewed persons). For only 1 respondent it was very difficult. Only that respondent required help to complete the task and all could complete it without error.

Assignment 4: Persuasive Messages
Instruction 1: For the sake of the test, imagine it is now 4PM.

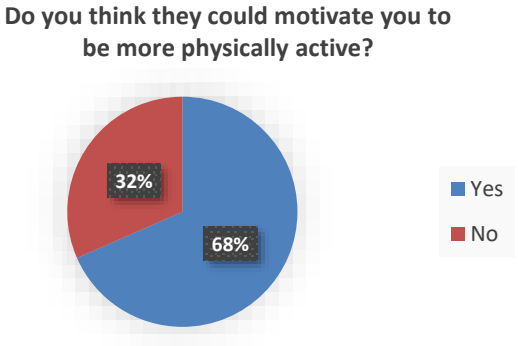


Figure 63 – Perceived effectiveness of type first class of persuasive messages

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

As regard to the motivation to be more physically active, 68% of the respondents answered with "yes" (Figure 63).

Instruction 2: Now imagine you are leaving your home.

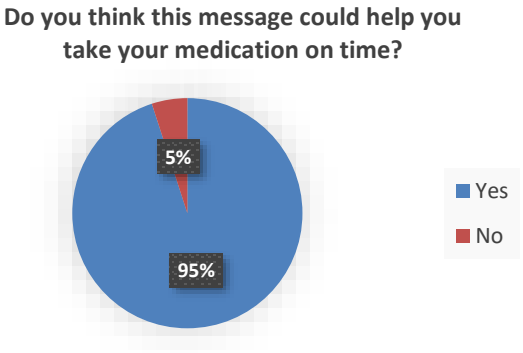


Figure 64 – Perceived effectiveness of the second class of persuasive messages

When asked if this message could help to take the medication on time, a clear majority of 95% answered with "yes" (Figure 64).

Instruction 3: Now imagine you are sitting in your living room watching TV

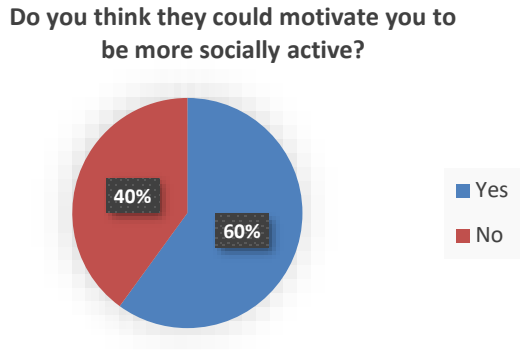


Figure 65 – Perceived effectiveness of the third class of persuasive messages

As shown in the chart the respondents answered positive, as 60% of the interviewed persons think that they could become motivated to be more socially active (Figure 65).

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

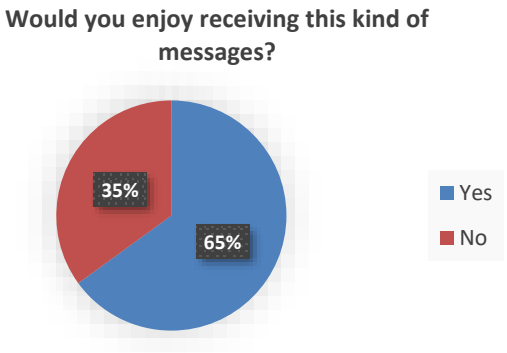


Figure 66 – Interest in receiving persuasive messages

Two thirds of the respondents (65%) would enjoy receiving this kind of messages (Figure 66). We could not find any specific preferred frequency for receiving the messages.

Assignment 5: Notification

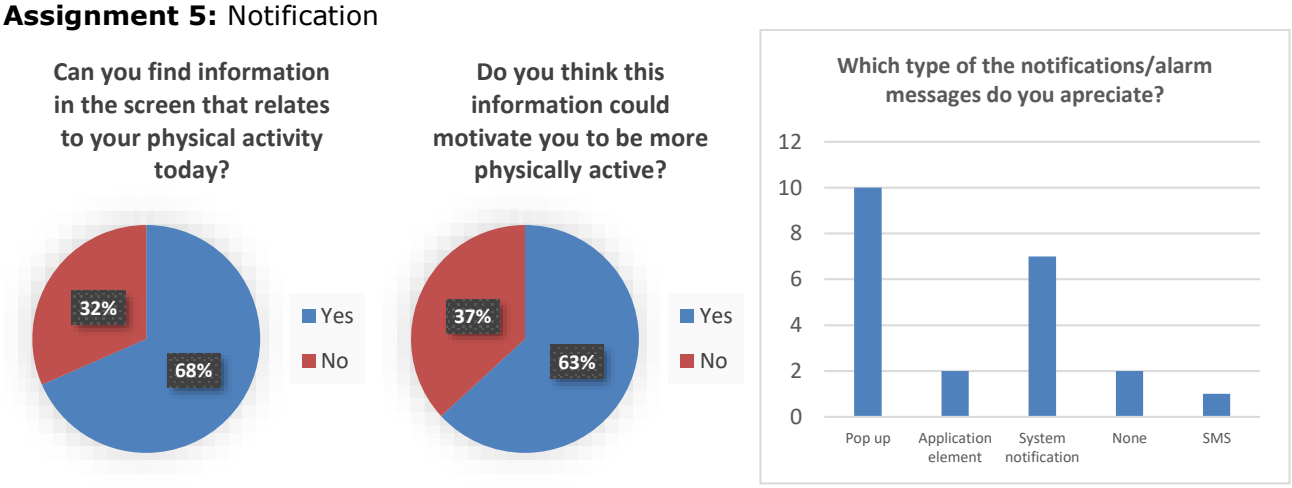


Figure 67 – Opinions about notification messages

As regards to notification, Figure 67 shows that 68% of the respondents can find information in the screen that relates to their physical activity on this day. Most of the respondents (63%) think that this information could motivate them to be more physically active. When asked about which type of the notifications/alarm messages they appreciate, one half of the respondents would prefer "pop-ups", with 7 respondents preferring system notifications and 2 the notifications inside the application. One respondent suggested notifications via SMS.

After completion of the tasks, participants answered the SUS and NASA-TLX questionnaires. The answers to the individual SUS questions are presented in Figure 68.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

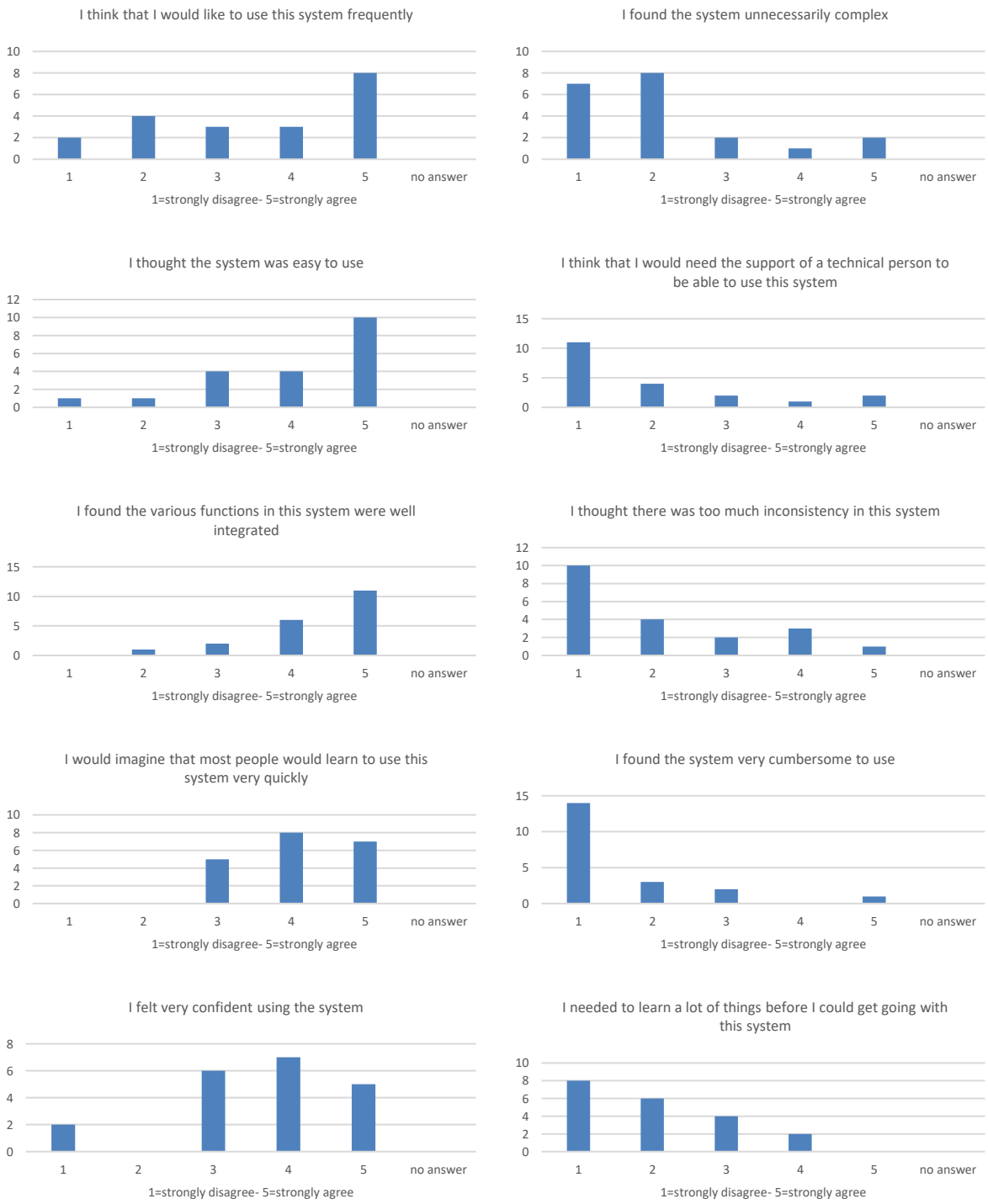


Figure 68 – Individual SUS answers

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The results in Figure 68 show that most of the respondents would like to use this system frequently. The reasons for this are the easy handling, the lack of complexity and the well-integrated various functions. Consequently, the respondents felt very confident in using this system. The majority of the respondents could imagine that most people would learn to use this system very quickly, as they did not need to learn a lot of things before they could get going. The average SUS score for all the participants that answered the 10 questions was 75, which is above to the overall average SUS score value, which is 68. This means that this the Remote Assistant application is not only usable, but already enjoyable to its users.

The individual items of the NASA-TLX questionnaire are presented in Figure 69.

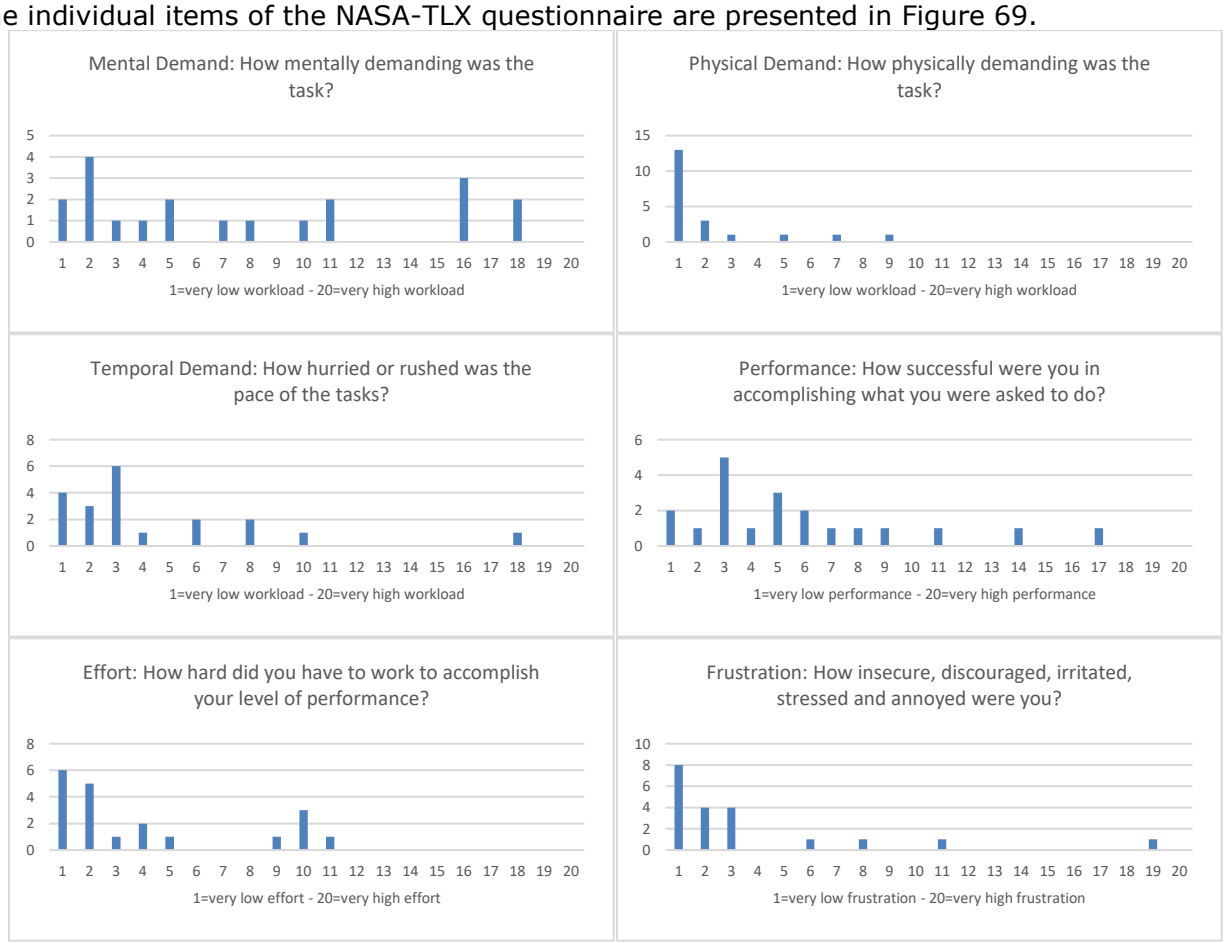


Figure 69 – Answers to individual items of the NASA-TLX questionnaire

The mental and physical demand was mostly considered as very low during the survey. The respondents did not feel hurried or rushed, concerning the pace of the tasks and felt very successful in accomplishing what they were asked to do. As a result, the level of insecurity, discouragement, irritation, stress and annoyance was very low. However, similar to what was reported in the medication monitoring application, their perception of performance was lower than expected compared to the other scores.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The overall raw (non-weighted) NASA-TLX score was 31,1, which is on the low end of the scale, representing a low requested workload.

4.2.4 Rule Editor

Assignment 1: Rule with simple trigger
Instruction 1: For the sake of the test create a rule to turn on the living room lights when you are inside the living room. Save the rule.

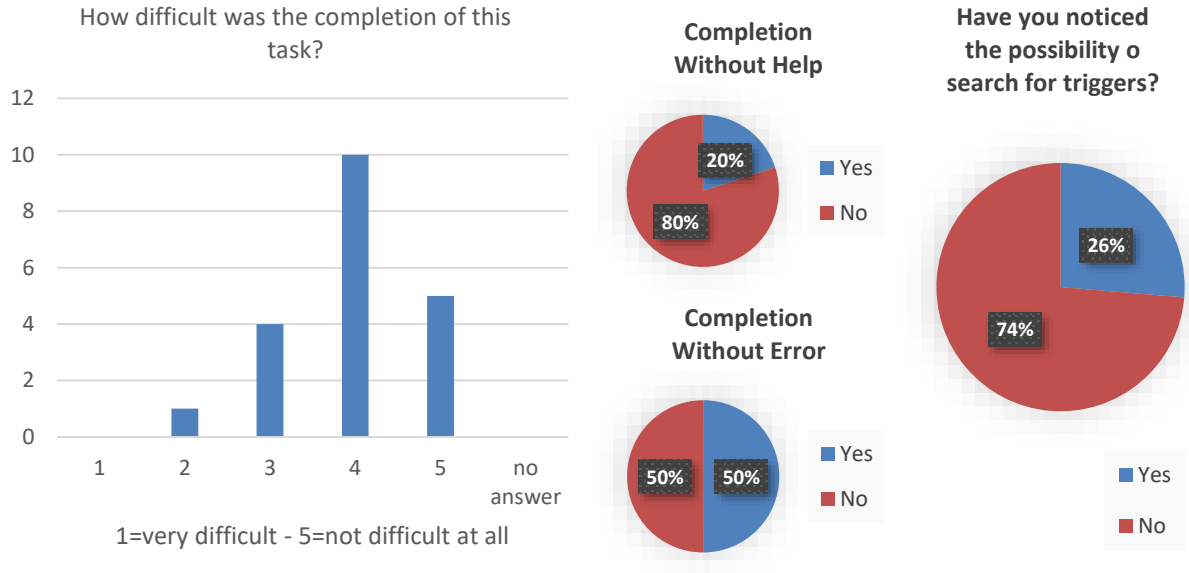


Figure 70 – Difficulty perceived, completion ratio and search awareness in the rule creation process

After the first instruction, the interviewees were asked how difficult the completion of the task was (Figure 70). A clear majority (15 interviewed persons) reported that the task was easy or very easy. Only 1 person rated the task as difficult. However, during the completion of the task, 80% needed help. At the same time, the error rate was high, as 50% of the respondents could not complete the task without errors. It turned out that the participants did not notice the possibility to search for triggers.

Instruction 2: Create a rule to turn on the TV when you enter the living room. Save the rule.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

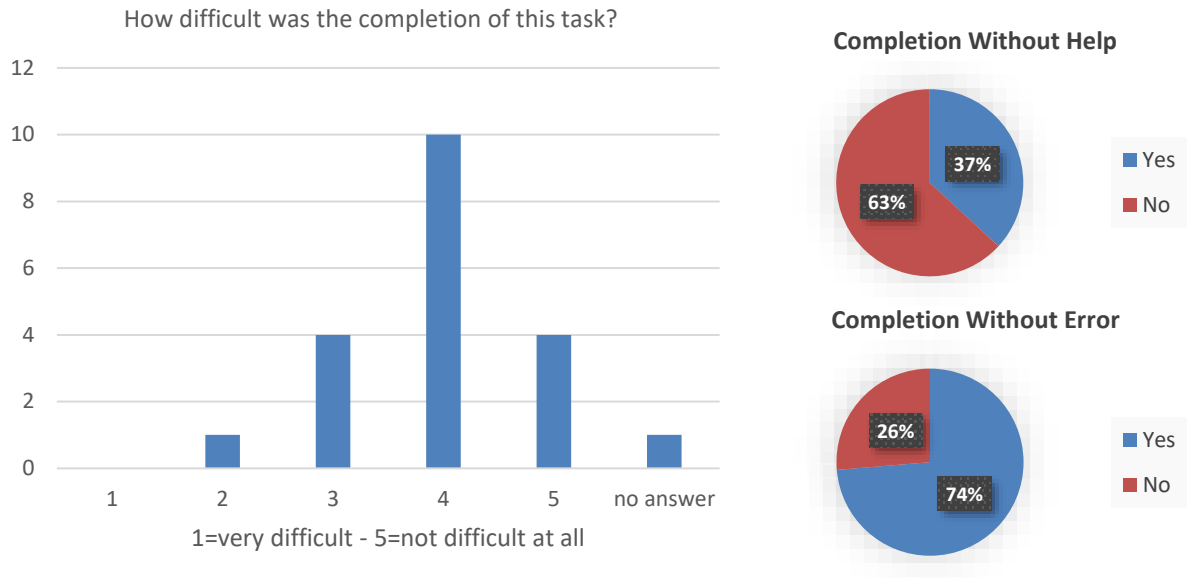


Figure 71 – Difficulty perceived and completion ratio in the second rule creation task

As indicated in Figure 71 the result after the second instruction was very similar to the first instruction. The majority of the respondents rated this task again as easy or very easy (14 persons). One respondent considered the task as difficult. About 63% of the interviewees needed help with the completion of the task and only 26% could complete it without error. Still, these number represent an improvement over the previous task, as can be expected.

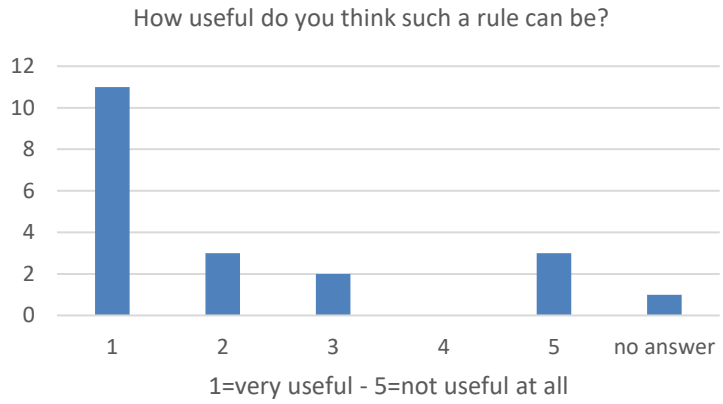


Figure 72 – Perceived usefulness of rule creation

Finally, the respondents were asked how useful they think such a rule can be (Figure 72). As can be derived from the chart, the majority of the test persons think that such a rule is very useful or useful. Only 3 persons rated such a rule as not useful.

Assignment 2: Simulator

Instruction: Use the simulator to check of the rules you created work correctly

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The simulator was not working correctly during these trials, which means that the first part of these assignment could not be completed.

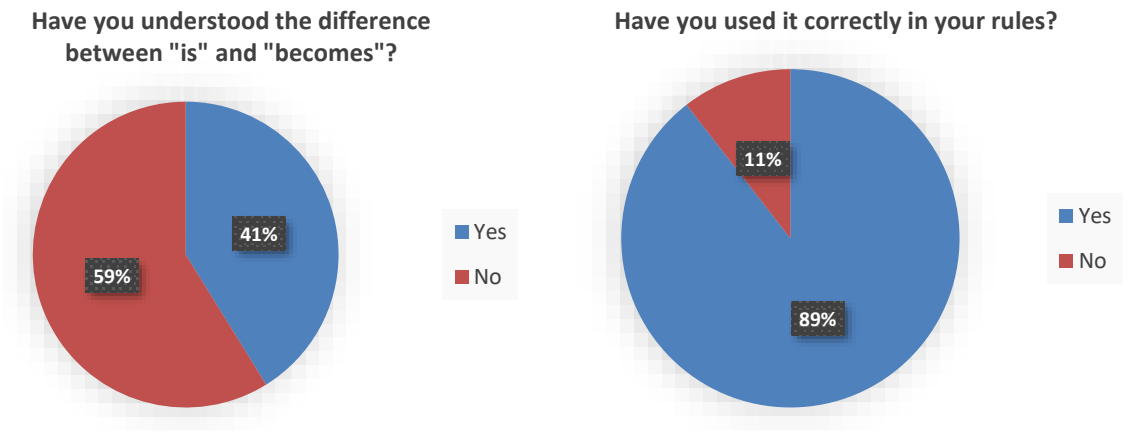


Figure 73 – Correct understanding and usage of "is" and "becomes"

When asked about the difference between "is" and "becomes", it turned out that only 41% understood the difference (Figure 73), but almost all participants (85%) managed to use it correctly.

Assignment 3: Interface rule
Instruction 1: For the sake of the test, create a rule that increases the font size when the user is outside the home. Save the rule.

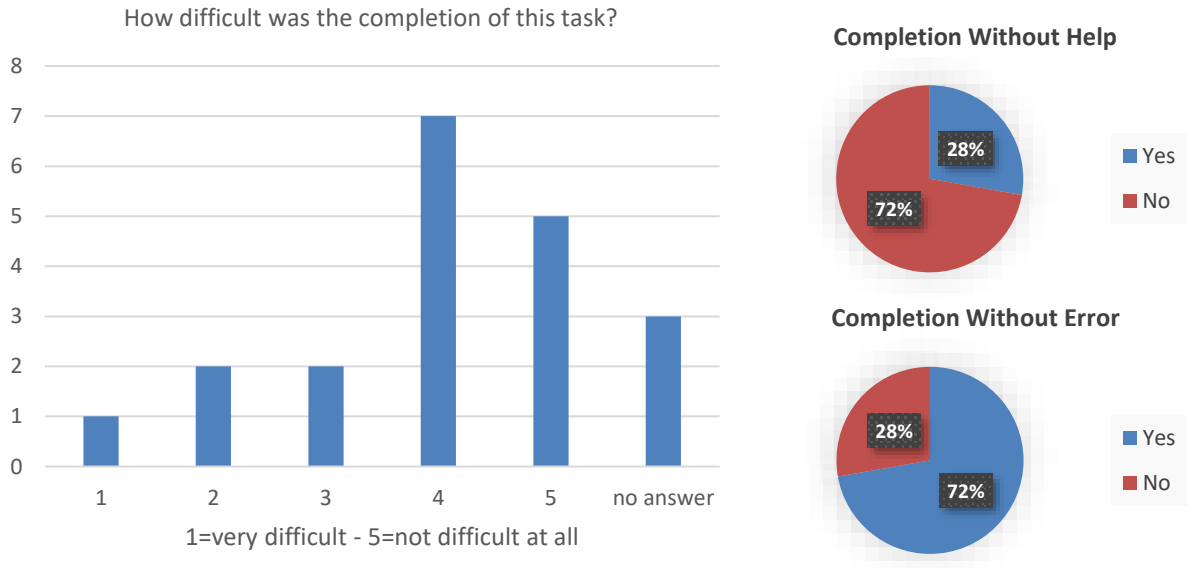


Figure 74 – Difficulty perceived and completion ratio of complex rule creation

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The respondents were again asked about the difficulty about the completion of the task, which was again not complicated for the interviewed persons (Figure 74). Similar to the results of the assignments 1 and 2, the majority of 12 persons considered the task as not difficult. However, 3 persons considered the task as difficult, which is an increase over the simple rules creation tasks. 72% of the respondents could not complete the task without help, but also 72% were able to complete it without errors.

Instruction 2: Go back to the Remote Monitoring Application. Imagine now that you are seeing the application in a tablet and you go outside your home. [Moderator triggers rule to change the font size, from 16px to 21px, a 30% increase]

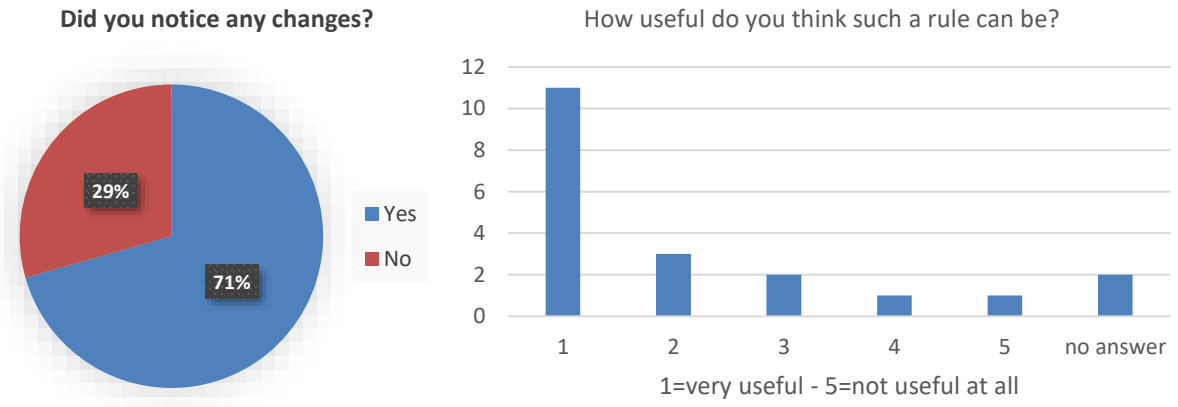


Figure 75 – Visibility and usefulness of automatically changing font size

As indicated in Figure 75, most of the respondents (71%) did notice the change in the font size. The majority of 14 respondents considered such a rule as useful or very useful. A minority of 2 persons rated it as not useful.

After completion of the tasks, participants answered the SUS and NASA-TLX questionnaires. The answers to the individual SUS questions are presented in Figure 76.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

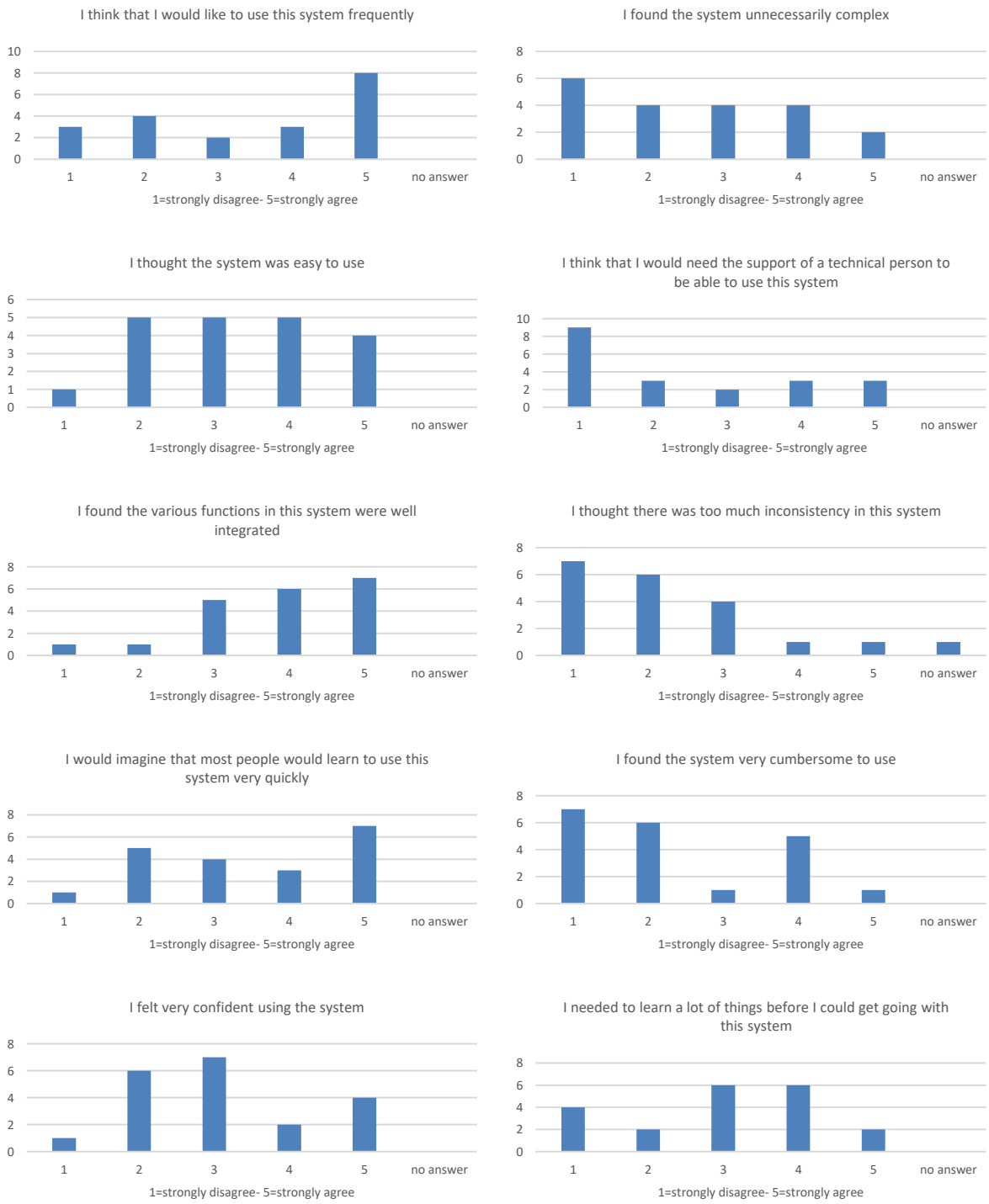


Figure 76 – Individual SUS answers

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

The results in Figure 76 show that most participants rated the rule editor positively, but there is still room for improvement. It clearly stands out that participants found it useful, since they would like to use it frequently and well integrated. However, while still being positive, they don't rate its ease of use and their confidence when using it, as high as other parameters. Still, they don't believe that help is required and they believe that most people could learn to use it quickly.
The average SUS score for all the participants that answered the 10 questions was 62, which is below to the overall average SUS score value, which is 68. This means that, for the participants in the test, the Rule Editor, in its current state, can be improved, but is not unusable.

The individual items of the NASA-TLX questionnaire are presented in Figure 77.

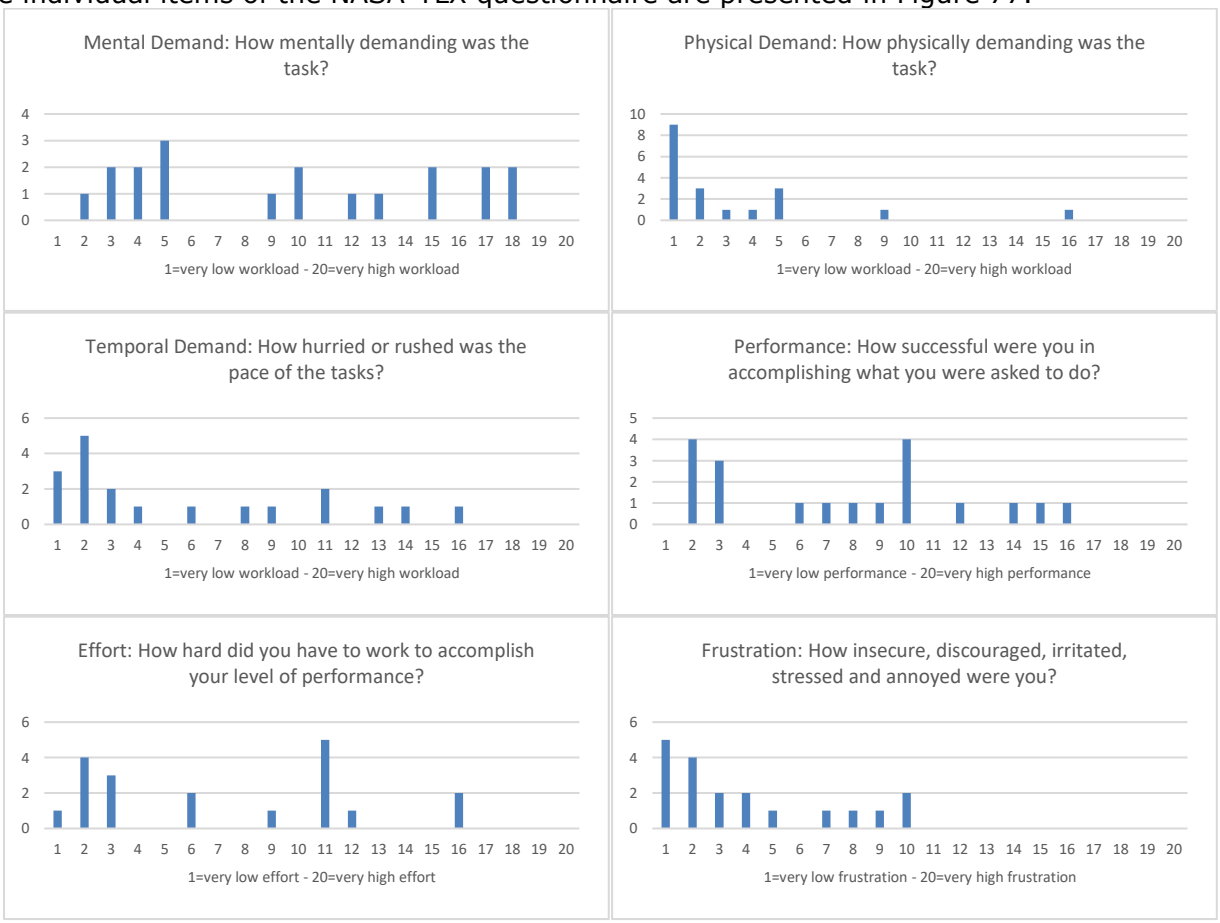


Figure 77 – Answers to individual items of the NASA-TLX questionnaire

As regards the evaluation of workload, all items are generally considered not demanding. Nevertheless, some respondents reported a high mental workload, consistent with the higher complexity of this application.
The overall raw (non-weighted) NASA-TLX score was 36,3, which is on the low end of the scale, representing a low requested workload.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

5 CONCLUSIONS

This document reports the final usability and accessibility evaluation activities that were conducted in the scope of the work package 2. These activities involved 67 participants distributed over one test in Switzerland in February (18 participants), one test in Switzerland in July and August (29 participants) and another test in Norway in August and September (20 participants). These usability and accessibility evaluations assessed different results from the PersonAAL project: the Medication Monitoring application, the Remote Assistant application and the Rule Editor, all supported by the fully functioning PersonAAL framework.

Overall, the results were positive. Generally, participants were able to complete representative tasks across the three applications, understood the value of the services offered, and were willing to use such applications in their future. The tests were also positive in the sense that they helped to uncover the remaining usability and accessibility issues, which can thus be addressed before the applications are deployed for the user trials in the final year of the project.

Both the Medication Monitoring and the Remote Assistant applications consistently achieved positive marks in the usability trials. Their SUS scores and the NASA-TLX, presented in Table 1, summarize their performance.

Table 1 – SUS and NASA-TLX scores of the Medication Monitoring and Remote Assistant applications

Site	SUS		NASA-TLX	
	Medication Monitoring	Remote Assistant	Medication Monitoring	Remote Assistant
Switzerland	67	75	36,75	30,3
Norway	75	75	27,9	31,1

The SUS is a measure of perceived usability. Its scale ranges from 0 to 100, with 68 being the average score of applications assessed with it. The Remote Assistant application scored 75 in both sites, which is an indication of above average usability. The Medication Monitoring scored 67 and 75, which also represents above average usability overall. The lower score of the latter can be explained by being a more recent development. This application is responsibility of IBM Norway, a partner that joined the consortium well after the project started, which means that it had less time for development. The NASA-TLX is a measure of perceived workload. Its scale ranges from 5 to 100, with 5 being extremely low perceived workload, and 100 being extremely high perceived workload. Both applications, in both sites scored near 30 points, which is indicative of a low demand for its users, and well aligned with the SUS scores. Although these are positive metrics, the user tests identified aspects that can be improved in both applications, which will be addressed in the coming weeks.

The Rule Editor is an application of a different nature than those of the previous applications. The Rule Editor targets caretakers, and elderly that can grasp its utility and slightly higher complexity. The increased complexity shows in the SUS and NASA-TLX scores it achieved in the tests, which can be seen in Table 2.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Table 2 – SUS and NASA-TLX scores of the Rule Editor

	SUS	NASA-TLX
Switzerland	7	92
Norway	62	36,3

Two main points can be made from the data presented in Table 2 and the overall perception of the user tests. First the usability of the Rule Editor is lower than the other applications, and the demanded workload is higher. This can be expected due to the nature of the application, and the coverage it entails (rules can be created to deal with many situations, ranging from appliance and home control, to user interface aspects, for instance).

Second, the results in the two sites are completely different. This result was unexpected and prompted us to inquire further into the characteristics of the two groups of participants that assessed the application. Demographically, the Swiss participants are slightly older than the Norwegian participants. Furthermore, the Norwegian participants can be characterized as active older adults (which is the primary target group for PersonAAL), while not all the Swiss participants would fit that description. More so, no group characterized themselves as informal caretakers, meaning they are not the primary target users of this application. This is also an explanation for the lower perceived usability of this application when compared with the other two. The characteristics of the Swiss participants (older and less active) also might have played a part in the results found. Since the Rule Editor was the last of the applications to be evaluated, participants were more tired when assessing it, even though the test moderators did their best to make sure the tests did not last longer than needed. The effects of the tiredness can be seen in several comments made during the Rule Editor evaluation, where participants reported lack of motivation to use and explore this tool. This, expectedly, lead to more difficulties while using it.

For this analysis, it is also important to consider the feedback from the Swiss tests run in February. In these tests, a smaller number of participants (7) assessed the Rule Editor, but four of those participants were informal caretakers. The feedback from these participants is comparable to the feedback from the participants in the Norwegian site. Taking all this into account, it seems safe to consider that the Rule Editor is usable by its target user group: informal caretakers. Furthermore, active older adults (represented by the majority of the participants in Norway and a small set in Switzerland) were also able to perceive the usefulness of the application and to use it to set simple rules. Nevertheless, the tests identified aspects of the Rule Editor (like the simulator, for example) that can still be improved to make it more usable.

In conclusion, older adults considered the Medication Monitoring and the Remote Assistant application as usable, and did not experience problems that will prevent them from using it independently. Active older adults and caretakers could understand the Rule Editor concepts and use it to set rules that can adapt the interface of the PersonAAL applications and automate tasks in the older adults' homes and the applications they use (e.g., for setting reminders for taking medication).

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

In the coming weeks, the results reported here, together with more detailed internal documents, will be the basis for the different application developers to improve their respective applications in anticipation of the user trials.

To conclude this report, one final note about the Physical Rehabilitation application. Given that IBM Norway, the partner responsible for this application, joined the project later, as aforementioned, the development is delayed, which means the application was not fully assessed in these tests. A prototype was deployed in the final stages of the Norwegian trial, and three participants assessed it. The feedback is positive, and in line with the one received for the Medication Monitoring. This is expected because, to minimize usability issues, the IBM Norway team followed a similar interaction paradigm in both applications.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

ANNEX 1 – REMOTE ASSISTANT APPLICATION EARLY TEST QUESTIONNAIRE

Before you start the user test, please handout the *informed consent* to the test person. Give her/him enough time to read it and ask questions about it.

ID:_____

Date:_____

Age:_____

- ○ Caregiver
- ○ Older person
- ○ Other:_____

Impairments (only those, that could influence usage of an application):

- ○ No
- ○ Yes

If yes:

- ○ Typical age related problems:_____
- ○ Specific problems:_____

Part 1

Imagine the last time you looked for support regarding health, fitness or wellness. What kind of support was it?

Where did you looked for the support?

How often do you look for support in this fields?

Exercise 1 (Home)
You can see the home screen of the PersonAAL application. Take a few moments to have a look on it.

Accessibility Questions:

- Do you know where you are?
- How do you evaluate the font, font size and colours?

Usability Questions

1) How do you evaluate the feedback and information you can read here?

2) How do you evaluate the question "How do you feel today"?

3) How much do you think the News feature is useful?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

4) Which other information would you like to see in the home page?

Exercise 2 (Health)
Imagine, your doctor told you to check your heard frequency regularly. The chart you can see here should give you some support to have your daily values monitored.

Accessibility Questions:
- If you look at the charts, what points are good, what should be improved/changed?

Usability Questions
1) How do you evaluate the structure of this module?

2) Do you consider the information, that is measured here, as useful? Which data would you add to this page? Which one would you drop?

3) Would you prefer to visualize real time sensor data (like ECG), or just to be alerted in case of some issues?

Please elaborate your answer

4) Do you think wearing a sensor equipped belt during the exercises/walk in order to get heart rate and steps number would be acceptable?

Yes, I can imagine.	Maybe I can imagine. I	I can't imagine.	No answer

Exercise 3 (Plan)
Imagine you would like to improve your health conditions. Therefore, you decided to walk 1000 steps per week. Your objective is to have a walk 3 times a week. How would you implement these dates in the calendar?

Accessibility Questions:
- How do you evaluate the symbols on this page?
- How do you evaluate the font, font size and the colour?

Usability Questions:
1) What would you do, if you scheduled an exercise accidentally for Monday, but it takes place on Tuesday?

Please evaluate your effort for this exercise.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

2) What information on this page do you think is usable, irrelevant or missing?
3) Now you decided to do some fitness exercises as well. Please change the time for fitness exercises to 60 minutes. What should be changed to optimize this task?

Please evaluate your effort for this exercise.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

4) Goals management is not largely customizable in order to keep the application simple to use. Please rate if you prefer to keep it simple (5) or more customizable (1)

Total standardized (100% standardized)	More standardized (75% standardized)	Partly standardized, partly customizable (50% standardized)	More customizable (25% standardized)	Total customizable (0% standardized)

Please elaborate your answer

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Exercise 4 (Fitness)
a) You would like to do some fitness exercises. Please search for "medium" exercises.
b) Now you want to train your upper body. Please search for this exercises.

Accessibility Questions:
- Are the options of the filter easy to read? Please elaborate.

Usability Questions:
1) How do you evaluate the warning?

2) How do you get along with the filter?

Please evaluate your effort for this exercise.

3) How intuitive is the filter option to you?

Very intuitive	Quite intuitive	Moderate	Less intuitive	Not intuitive

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Please elaborate your answer

Exercise 6 (Services)
Accessibility Questions:

1) How do you evaluate the headline "Shopping" and "Service"? Please elaborate your answer.

Usability Questions:

2) You would like to by some milk, pizza and pig. How would you select the food from the list?

Please evaluate your effort for this exercise.

3) Shopping list: How do you evaluate the shopping list?
Please elaborate your answer

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

4) How clear is the option "buy" to you?

Very clear	Quite clear	Quite unclear	Very unclear	No answer

Please elaborate your answer

5) How useful do you consider the fact to check what you have already bought?

Very useful	Quite useful	Moderate	Less useful	Not useful	No answer

Please elaborate your answer

Exercise 7 (Profile)
a) Please delete all interests.
b) Now, please add the following interests: Swim, TV news, Cooking

Usability Questions:
1) How intuitive is the feature "interests" to you?

Very intuitive	Quite intuitive	Less intuitive	Not intuitive	No answer

Please elaborate your answer
2) If you added an interest, how did you get along with this? How do you evaluate this function?

Please evaluate your effort for this exercise.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

3) How do you get along with removing an interest?

Please evaluate your effort for this exercise.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

4) What should be added in the interest list?

Exercise 8 (Contacts)
a) Please add the contact "George" with this number "123456789"
b) Please add the contact "Mary" with this number "987654321"
c) Type in the search label "George"
d) Please remove George from the list.

Accessibility Questions:
- Do you understand the functionality of the symbols? Which of them were confusing?
- What does offline mean?
- How much is perceivable that contacts can be sorted by status/name by clicking on table headers?

Usability Questions:
1) How do you evaluate the option to add a new contact?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

It is…

very easy to add a new contact.	quite easy to add a new contact	a little bit difficult to add a new contact	very difficult to add a new contact	No answer

Please elaborate your answer

Please evaluate your effort for this exercise.

2) How useful do you consider a favourite contacts list?

Very useful	Quite useful	Moderate	Less useful	Not useful	No answer

Please elaborate your answer

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

3) Comparing the "plus button" on the profile and on the contact module, how do you evaluate this function?

4) Regarding the search function, how do you evaluate this function?

Please evaluate your effort for this exercise.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

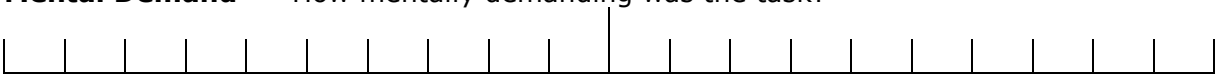
General impression of the app

	Strongly disagree				Strongly agree
1. I think that I would like to use this system frequently	1	2	3	4	5
2. I found the system unnecessarily complex	1	2	3	4	5
3. I thought the system was easy to use	1	2	3	4	5
4. I think that I would need the support of a technical person to be able to use this system	1	2	3	4	5
5. I found the various functions in this system were well integrated	1	2	3	4	5
6. I thought there was too much inconsistency in this system	1	2	3	4	5
7. I would imagine that most people would learn to use this system very quickly	1	2	3	4	5
8. I found the system very cumbersome to use	1	2	3	4	5
9. I felt very confident using the system	1	2	3	4	5
10. I needed to learn a lot of things before I could get going with this system	1	2	3	4	5

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

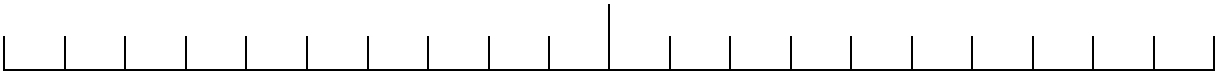
Please evaluate your workload

Mental Demand How mentally demanding was the task?



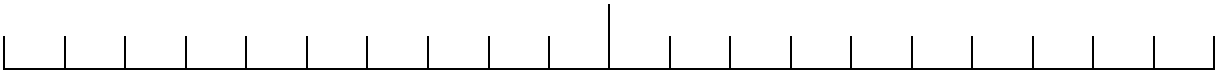
Very Low Very High

Physical Demand How physically demanding was the task?



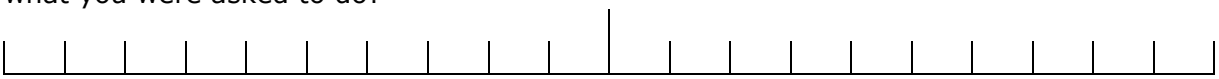
Very Low Very High

Temporal Demand How hurried or rushed was the pace of the tasks?



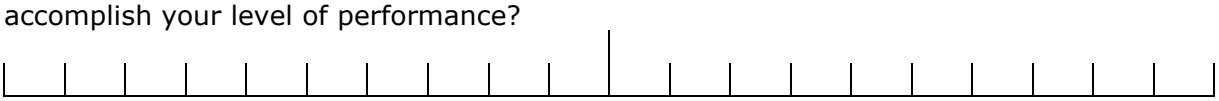
Very Low Very High

Performance How successful were you in accomplishing what you were asked to do?



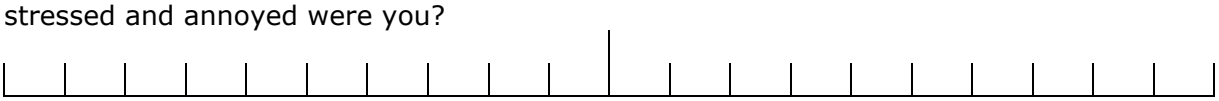
Perfect Failure

Effort How hard did you have to work to accomplish your level of performance?



Very Low Very High

Frustration How insecure, discouraged, irritated, stressed and annoyed were you?



Very Low Very High

Thank you very much for your participation!

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

ANNEX 2 – PERSONALIZATION RULE EDITOR EARLY TEST QUESTIONNAIRE

ID:_____
Date:_____

Part 1: Introduction (1 Min.)

- PersonAAL app includes system of smart technology/ smart home.
- What should happen in which situation?
- Define commands that work as part of the mechanism cause and effect.
- No app for daily usage
- Program commands without specific knowledge

Part 2: Search for more information (5 Min)

- User
  - What do you associate with the word "user"?
  - In your opinion, what belongs to a user?
- Environment
  - If you think of your daily environment, what parts are included there?
  - What do you associate with the word "environment"?
- Technology
  - If you walk through your house in thoughts, what kind of technology do you see? (Kitchen, bathroom, living room, bedroom, office etc.)
- Social
  - If you think of your social environment, who do you contact regularly?
  - What do you associate with your social environment?

Part 3: First demonstration (3 Min)

- Show app on computer
- Explain hierarchic structure
- Explain what is behind the four parts (User, Environment, Technology, Social)
- Explain what is behind "and" and "or"
- Show complete structure

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Part 4: Solve exercise together

If the temperature is less than 16 degrees, turn on all heaters.

- Trigger
  - Environment
  - Ambient conditions
  - Temperature
- Actions
  - Appliances
  - All
  - All heaters

- Safe rule
- Add new rule

Part 5: Exercises

1) If it is 8 o'clock in the morning, then open the blind in the bedroom.
2) If the user is very stressed, then turn on the radio in the living room.
3) If the front door is open, then remind the user to close it. Send him a message on his phone.
4) If the W-Lan connection is off, then send an e-mail to your daughter with the message "W-Lan does not work".
5) If the light is very bright, then change background colour into black.
6) If the person is older than 80, then change the font size to 18pt.
7) On the top of the system you can see the tools "private rules" and "public rules".
   a) Please delete one of your private rules.
   b) Please import a public rule to your private rules.

- What should be added?
- Where are difficulties?
- Where are the steps not logical? (logical hierarchy)
- What should be changed?
- Do you have any suggestions for improvement?

Part 6: Questionnaire

1) What is your gender?
2) How old are you
3) What is your education level?
4) How much programming experience do you have?
5) Before this test, have you ever used tools supporting personalisation based on dynamic events (like e.g. IFTTT, Atooma, Tasker)? If yes, please specify which ones

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

6) How do you rate the usability of the trigger selection mechanism supported by the tool? (1-7; 1=very bad; 7=very good)
7) How do you rate the usability of the action selection mechanism supported by the tool? (1-7; 1=very bad; 7=very good)
8) How do you rate the usability, in general, of the rule-based approach? (1-7; 1=very bad; 7=very good)
9) Do you have any general suggestion to improve the usability of the approach?
10) How do you rate the exhaustiveness of the set of events that can be specified with the tool? (1-7; 1=very bad; 7=very good)
11) Do you have any suggestion to improve the hierarchy of events (e.g. elements to add/remove to/from the set of events)?
12) How do you rate the exhaustiveness of the set of actions that can be specified with the tool? (1-7; 1=very bad; 7=very good)
13) How do you rate the usability of the tool support for reusing previously saved rules? (1-7; 1=very unusable; 7=very usable)
14) How do you rate the usefulness of describing the rules in natural language? (1-7; 1=very useless; 7=very useful)
15) Do you have further comments on the description of rules in natural language?
16) Do you think that this approach is useful to make context-dependent an application? Please explain/motivate you answer
17) Do you have any general suggestions to improve the Authoring Tool?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

ANNEX 3 – MEDICATION MONITORING APPLICATION QUESTIONNAIRE

Instruction: Before you start the user test, please read and sign the informed consent. Please take the time you need to read it and ask questions when necessary.

User information

User-ID:_____

Date:_____

Age:_____ Geschlecht: ( ) m ( ) f

- ○ Caregiver
- ○ Older person
- ○ Other:_____

Impairments (only those, that could influence the use of an application):

- ○ No
- ○ Yes

If yes, please specify:

- ○ Age related:_____
- ○ Other:_____

Instruction: In front of you there is a tablet/computer with an open web browser. The website you see in the web browser is a web-based application for medication management that can be accessed from any smartphone, tablet or computer. It doesn't matter if you do not use any medications yourself. We are now going to ask you to test this application and give us your opinion on how user-friendly you think it is and what about it that might be useful and not so useful. Remember that this is an application that should be easy to use. If you find anything difficult, it is important to let us know so we may improve this in the later versions of the application. We ask you NOT to enter personal information, but rather to use the names and personal details referred to below.

Assignment 1: Authentication

Instruction: Look at the screen on the tablet/computer, and follow the instructions to log in to an account with the following details:

Username: stefan.kroll@terzstiftung.ch
Password: personaal

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Question 1.1

On a scale from 1 to 5, 1 meaning “Very difficult”, and 5 “Not at all difficult”: How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 2: Create Medication

1) Instruction: When you have authenticated successfully, enter the following medication: Cozaar (medication for high blood pressure), one pill to take once a day in the mornings until the end of the year. Set a time that typically would be convenient for you in the morning, before or after breakfast, when you typically will be in your house/apartment.

Question 2.1

On a scale from 1 to 5, 1 meaning “Very difficult”, and 5 “Not at all difficult”: How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

2) Instruction: Enter the following medication: Calcium-Sandoz (for osteoporosis), pill dissolved in a glass of water, taken in the evenings, also until the end of the year. Set a time that typically would be convenient for you in the evening.

Question 2.2

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

On a scale from 1 to 5, 1 meaning “Very difficult”, and 5 “Not at all difficult”: How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Question 2.3
Were you able to input that the pill needed to be dissolved in water?

( ) Yes ( ) No, because_____

Assignment 3: Calendar

Instruction: Go to the Calendar and find the date one month from now

Question 3.1

On a scale from 1 to 5, 1 meaning “Very difficult”, and 5 “Not at all difficult”: How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Question 3.2
Are you able to distinguish the different medications that you need to take on that day?

( ) Yes ( ) No

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

If not, can you find a mechanism to help you distinguish the different medications?

( ) Yes ( ) No

Comments by observer: _____
Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 4: Editing Medication and Notifications

1) Instruction: For the sake of the test, set a new time to take Cozaar, 3 minutes from now.

Question 4.1

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

2) Instruction: Wait until the notifications pop up on the screen, and press "OK" for taking the medication.

Question 4.2

Did you notice the notification?

( ) Yes ( ) No

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

3) Instructions: Report that you have taken the medication.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Question 4.3
On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3		4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 5: Medication status

Instructions: Go back to the initial screen? Please report which medication you have already taken and which medication you still need to take today.

Question 5.1
On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3		4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 6: Logging out

Instructions: Log out from the application

Question 6.1
On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3		4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 7: General impression of the app
Instruction: Please consider all aspects of the application when answering the following questions.

Strongly disagree				Strongly agree	
1	2	3	4	5	7.1 I think that I would like to use this system frequently
1	2	3	4	5	7.2 I found the system unnecessarily complex
1	2	3	4	5	7.3 I thought the system was easy to use
1	2	3	4	5	7.4 I think that I would need the support of a technical person to be able to use this system
1	2	3	4	5	7.5 I found the various functions in this system were well integrated
1	2	3	4	5	7.6 I thought there was too much inconsistency in this system
1	2	3	4	5	7.7 I would imagine that most people would learn to use this system very quickly
1	2	3	4	5	7.8 I found the system very cumbersome to use
1	2	3	4	5	7.9 I felt very confident using the system
1	2	3	4	5	7.10 I needed to learn a lot of things before I could get going with this system

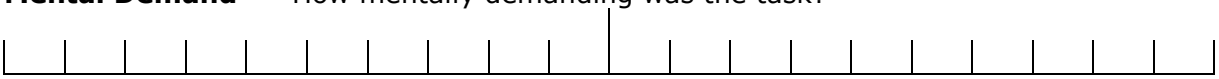
The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 8: Evaluation of workload

Instruction: Please consider all aspects of the application

Question 8.1

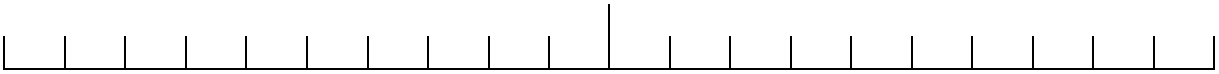
Mental Demand How mentally demanding was the task?



Very Low Very High

Question 8.2

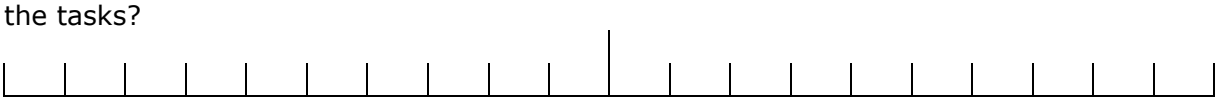
Physical Demand How physically demanding was the task?



Very Low Very High

Question 8.3

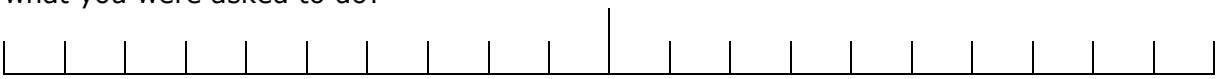
Temporal Demand How hurried or rushed was the pace of the tasks?



Very Low Very High

Question 8.4

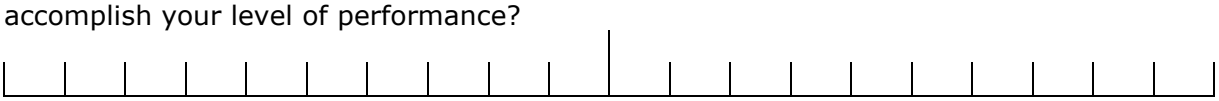
Performance How successful were you in accomplishing what you were asked to do?



Perfect Failure

Question 8.5

Effort How hard did you have to work to accomplish your level of performance?



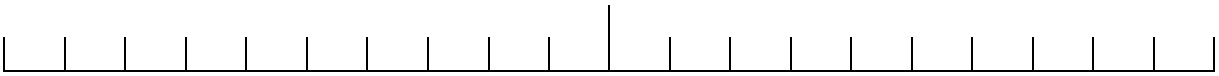
Very Low Very High

Question 8.6

Frustration How insecure, discouraged, irritated, stressed and annoyed were you?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



Very Low Very High

Thank you very much for your participation!

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

ANNEX 4 – REMOTE ASSISTANT APPLICATION QUESTIONNAIRE

Instruction: Before you start the user test, please read and sign the informed consent. Please take the time you need to read it and ask questions when necessary.

User information

User-ID:_____

Date:_____

Age:_____ Gender: ( ) m ( ) f

- Caregiver
- Older person
- Other:_____

Impairments (only those, that could influence the use of an application):

- No
- Yes

If yes, please specify:

- Age related:_____
- Other:_____

Instruction: You can see in front of you a tablet/computer with an open web browser. The website you can see in the web browser is a web-based application for helping you monitor your health and fitness from a smartphone, tablet or computer. We are now going to ask you to test this application and give us your opinion on how user-friendly you think it is and what aspects you consider useful or less useful. Remember that this is a prototype. The application that should be easy to use in the future based on your feedback. If you find anything difficult, please let us know so we can improve this.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 1: Authentication

Instruction: Look at the screen on the tablet/computer, and follow the instructions to log in to an account with the following details:

- Username: john
- Password: personaal

Question 1.1

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 2: Survey

Instruction: Please find the survey and answer the questions.

Question 2.1

Was any of the questions difficult to understand.

( ) Yes ( ) No

Question 2.2

Did you notice a change on the home screen after completing the survey?

( ) Yes ( ) No

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Question 2.3

Could you explain why the home screen changed?

( ) Yes ( ) No

[If not, or if the explanation is wrong, provide the correct explanation - that some of the boxes have been hidden as a consequence of the reported motivation factor: health or fitness]

Question 2.4
Do you find this useful?

( ) Yes ( ) No

Please justify your decision:_____

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 3: Plan Screen

1) Instruction: For the sake of the test, set up your weekly goals as 60 minutes of exercise, walking 20.000 steps and meeting more than 5 people

Question 3.1

On a scale from 1 to 5, 1 meaning “Very difficult”, and 5 “Not at all difficult”: How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

2) Instruction: Report that you have worked out 30 minutes yesterday

Question 3.2

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

3) Instruction: Plan to walk 4000 steps tomorrow

Question 3.3

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Assignment 4: Persuasive Messages

1) Instruction: For the sake of the test, imagine it is now 4PM.

[Moderator triggers the event for the rule "Alarm - Message 1 - DE"]

[Moderator triggers the event for the rule "Reminder - Message 1 - DE"]

Question 4.1
Do you think they could motivate you to be more physically active?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

( ) Yes ( ) No

Comments:_____

2) Instruction: Now imagine you are leaving your home.

[Moderator triggers the event for the rule Alarm Message2_DE]
[Moderator triggers the event for the rule Reminder Message2_DE]

Question 4.2
Do you think this message could help you take your medication on time?

( ) Yes ( ) No

Comments:_____

3) Instruction: Now imagine you are sitting in your leaving room watching TV

[Moderator triggers Alarm Message3_DE]

[Moderator triggers Reminder Message3_DE]

Question 4.3
Do you think they could motivate you to be more socially active

( ) Yes ( ) No

Comments:_____

Question 4.4
Would you enjoy receiving this kind of messages?

( ) Yes ( ) No

[If yes] With what periodicity? _____

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 5: Notification

[Moderator triggers Reminder - Daily steps below threshold - DE
DailySteps_1501063497669_7

Instruction: Go to the Home Screen. Now imagine that you have only walked 2000 steps.

Question 5.1
Can you find information in the screen that relates to your physical activity today?

( ) Yes ( ) No

Question 5.2
Do you think this information could motivate you to be more physically active?

( ) Yes ( ) No

Question 5.3
Which type of the notifications/alarm messages do you appreciate?

( ) Pop up message
( ) Present message in box
( ) Message in system tray
( ) None

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 6: General impression of the app

Instruction: Please consider all aspects of the application when answering the following questions.

Strongly disagree				Strongly agree	
1	2	3	4	5	6.1 I think that I would like to use this system frequently
1	2	3	4	5	6.2 I found the system unnecessarily complex
1	2	3	4	5	6.3 I thought the system was easy to use
1	2	3	4	5	6.4 I think that I would need the support of a technical person to be able to use this system
1	2	3	4	5	6.5 I found the various functions in this system were well integrated
1	2	3	4	5	6.6 I thought there was too much inconsistency in this system
1	2	3	4	5	6.7 I would imagine that most people would learn to use this system very quickly
1	2	3	4	5	6.8 I found the system very cumbersome to use
1	2	3	4	5	6.9 I felt very confident using the system
1	2	3	4	5	6.10 I needed to learn a lot of things before I could get going with this system

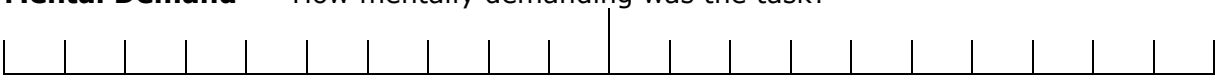
The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 7: Evaluation of workload

Instruction: Please consider all aspects of the application

Question 7.1

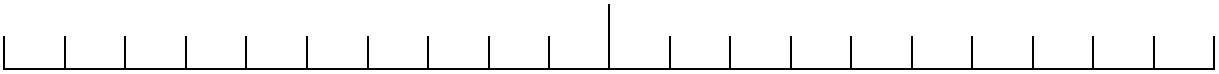
Mental Demand How mentally demanding was the task?



Very Low Very High

Question 7.2

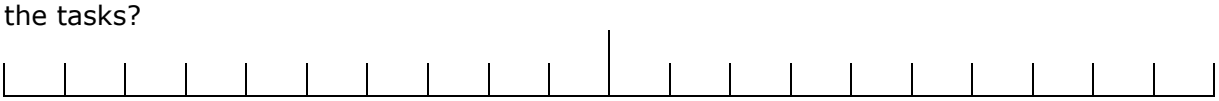
Physical Demand How physically demanding was the task?



Very Low Very High

Question 7.3

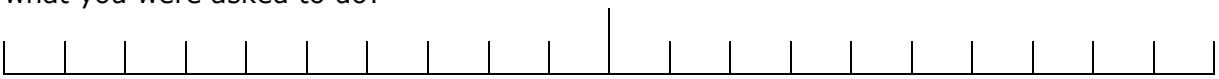
Temporal Demand How hurried or rushed was the pace of the tasks?



Very Low Very High

Question 7.4

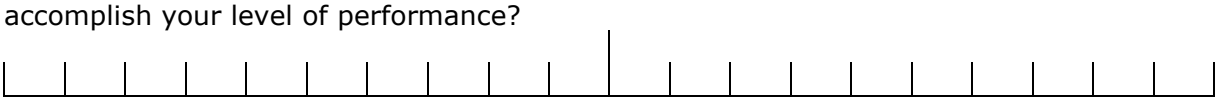
Performance How successful were you in accomplishing what you were asked to do?



Perfect Failure

Question 7.5

Effort How hard did you have to work to accomplish your level of performance?



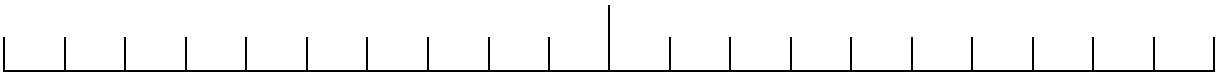
Very Low Very High

Question 7.6

Frustration How insecure, discouraged, irritated, stressed and annoyed were you?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



Very Low Very High

Thank you very much for your participation!

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

ANNEX 5 – RULE EDITOR QUESTIONNAIRE

Instruction: Before you start the user test, please read and sign the informed consent. Please take the time you need to read it and ask questions when necessary.

User information

User-ID:_____

Date:_____

Age:_____ Gender: ( ) m ( ) f

- Caregiver
- Older person
- Other:_____

Impairments (only those, that could influence the use of an application):

- No
- Yes

If yes, please specify:

- Age related:_____
- Other:_____

Instruction: In front of you there is a tablet/computer with an open web browser. The website you see in the web browser is a web-based application to allow you to create rules that can be used to modify the two applications you've seen before. We are now going to ask you to test this application and give us your opinion on how user-friendly you think it is and what about it that might be useful and not so useful. Remember that this is an application that should be easy to use. If you find anything difficult, it is important to let us know so we may improve this in the later versions of the application. We ask you NOT to enter personal information, but rather to use the names and personal details referred to below.

Assignment 1: Rule with simple trigger

1) Instruction: For the sake of the test create a rule to turn on the living room lights when you are inside the living room. Save the rule.

Question 1.1

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Question 1.2

Have you noticed the possibility to search for triggers?

( ) Yes ( ) No

2) Instruction: Create a rule to turn on the TV when you enter the living room. Save the rule.

Question 1.3

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Question 1.4

On a scale from 1 to 5, 1 meaning "Very useful", and 5 "Not useful at all": How useful are features like these?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

1 (very useful)	2	3	4	5 (not useful at all)

Comments by observer: _____

Assignment 2: Simulator

Instruction: Use the simulator to check if the rules you created work correctly.

Question 2.1

On a scale from 1 to 5, 1 meaning "Very difficult", and 5 "Not at all difficult": How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

Question 2.2

Have you understood the difference between "is" and "becomes"

( ) Yes ( ) No

Question 2.3

Have you used it correctly in your rules?

( ) Yes ( ) No

Assignment 3: Complex triggers

1) Instruction: For the sake of the test create a rule that increases the font size when the user is outside the home. Save the rule.

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Question 3.1

On a scale from 1 to 5, 1 meaning “Very difficult”, and 5 “Not at all difficult”: How difficult was the completion of this task?

1 (very difficult)	2	3	4	5 (not at all difficult)

Comments by observer: _____

Completion of this task without help? ( ) Yes ( ) No
Completion of this task without (non-critical) error? ( ) Yes ( ) No

2) Instruction: Go back to the Remote Monitoring Application. Imagine now that you are seeing the application in a tablet and you go outside your home.

[Moderator triggers the event for the rule font size.]

Question 3.2
Did you notice any changes?

( ) Yes ( ) No

Question 3.3
How useful do you think such a rule can be; 1 meaning “very useful” and 5 meaning “not useful at all”

1 (very useful)	2	3	4	5 (not useful at all)

Comments:_____

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 4: General impression of the app

Instruction: Please consider all aspects of the application when answering the following questions.

Strongly disagree				Strongly agree	
1	2	3	4	5	4.1 I think that I would like to use this system frequently
1	2	3	4	5	4.2 I found the system unnecessarily complex
1	2	3	4	5	4.3 I thought the system was easy to use
1	2	3	4	5	4.4 I think that I would need the support of a technical person to be able to use this system
1	2	3	4	5	4.5 I found the various functions in this system were well integrated
1	2	3	4	5	4.6 I thought there was too much inconsistency in this system
1	2	3	4	5	4.7 I would imagine that most people would learn to use this system very quickly
1	2	3	4	5	4.8 I found the system very cumbersome to use
1	2	3	4	5	4.9 I felt very confident using the system
1	2	3	4	5	4.10 I needed to learn a lot of things before I could get going with this system

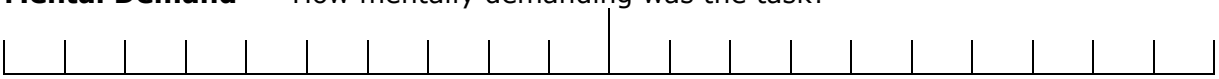
The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Assignment 5: Evaluation of workload

Instruction: Please consider all aspects of the application

Question 5.1

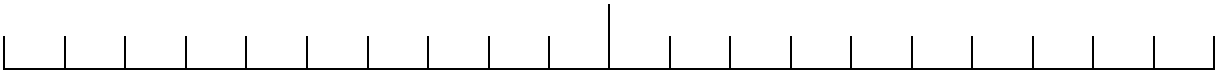
Mental Demand How mentally demanding was the task?



Very Low Very High

Question 5.2

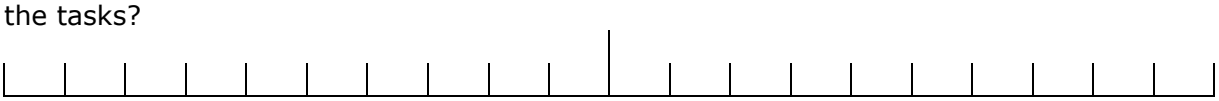
Physical Demand How physically demanding was the task?



Very Low Very High

Question 5.3

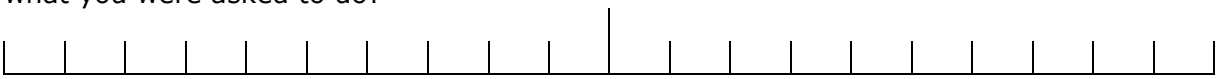
Temporal Demand How hurried or rushed was the pace of the tasks?



Very Low Very High

Question 5.4

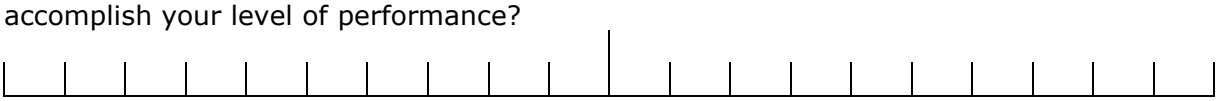
Performance How successful were you in accomplishing what you were asked to do?



Perfect Failure

Question 5.5

Effort How hard did you have to work to accomplish your level of performance?



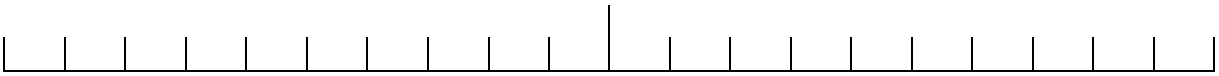
Very Low Very High

Question 5.6

Frustration How insecure, discouraged, irritated, stressed and annoyed were you?

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



Very Low Very High

Thank you very much for your participation!

The project PersonAAL is cofunded by the AAL Joint Programme (AAL-2014) and the following National Authorities and R&D programs in Italy, Portugal, Norway and Switzerland.