

**POSEIDON – Bringing Assistive Technology to
People with Down Syndrome
-
Results of a three Year European Project**

Dr. Eva Schulze
Berlin Institute for Social Research

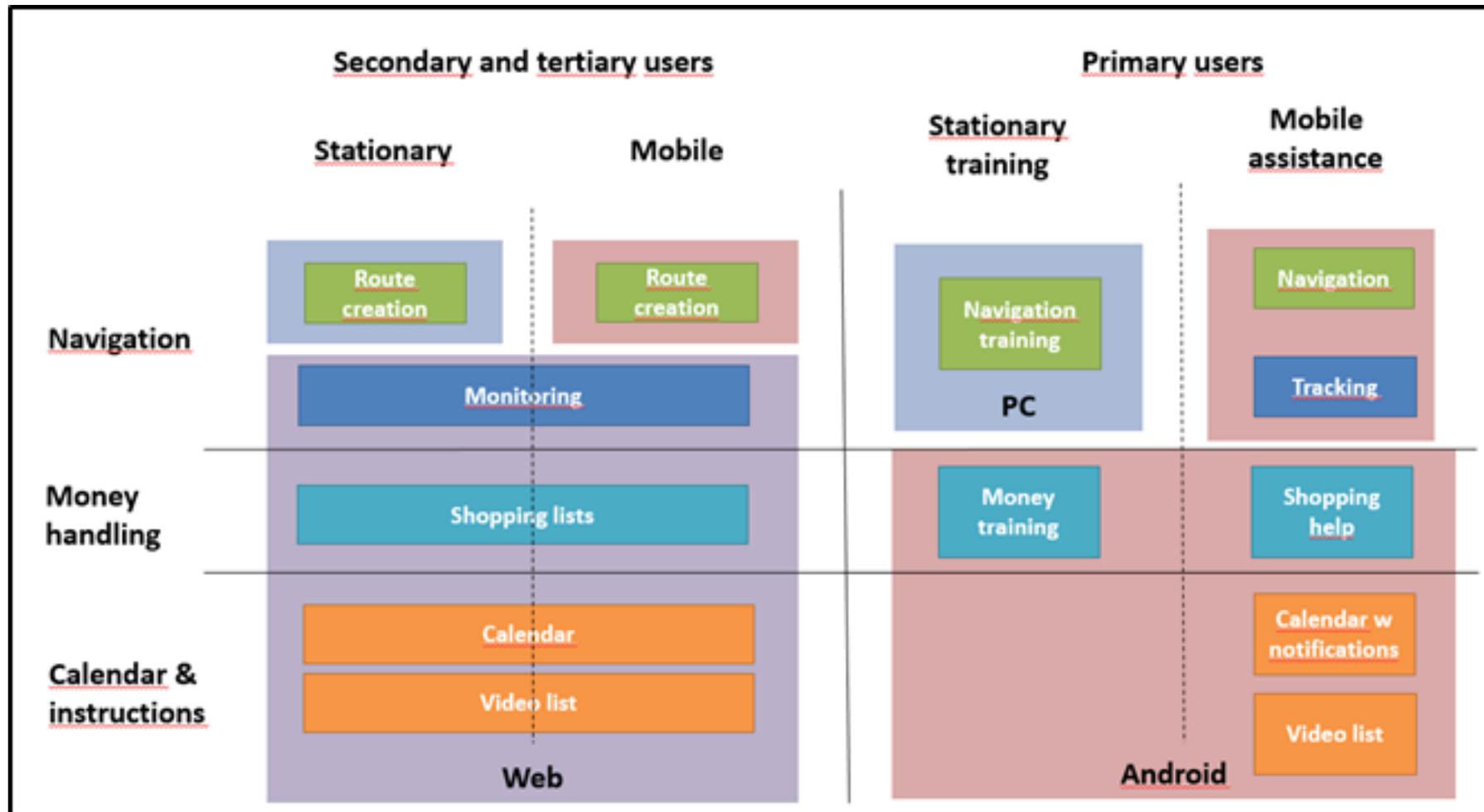
POSEIDON

- The POSEIDON project focused on an increase of inclusion of people with Down syndrome into society and a greater independence with the help of IT-technology.
- Based on the results of a requirement study, it became clear that they need support to handle time, money and mobility to be more independent.
- Several personalized and smart technology solutions were developed for people with Down syndrome and their carers to support them to manage their daily activities as independently as possible.
- POSEIDON provides support in the areas of time management, mobility and money handling

The POSEIDON applications

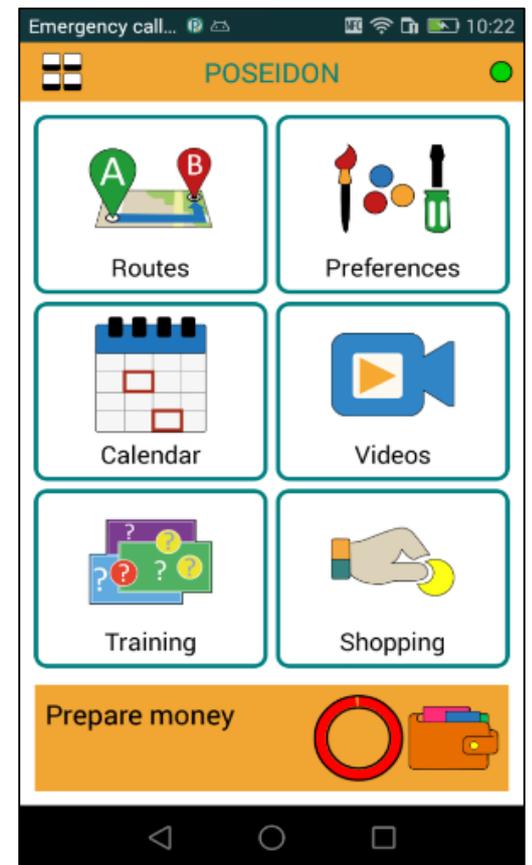


The POSEIDON applications

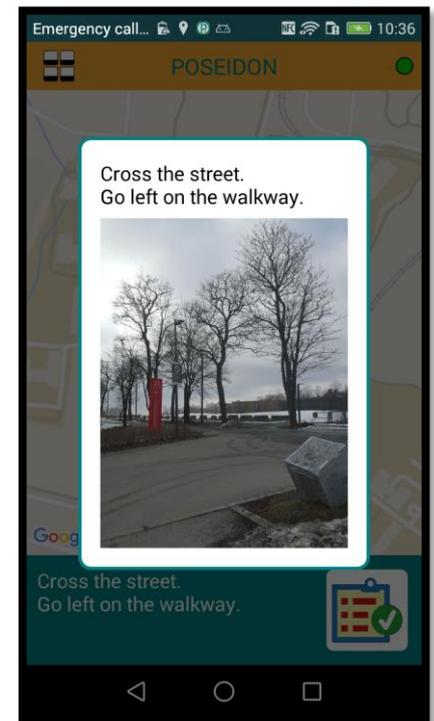
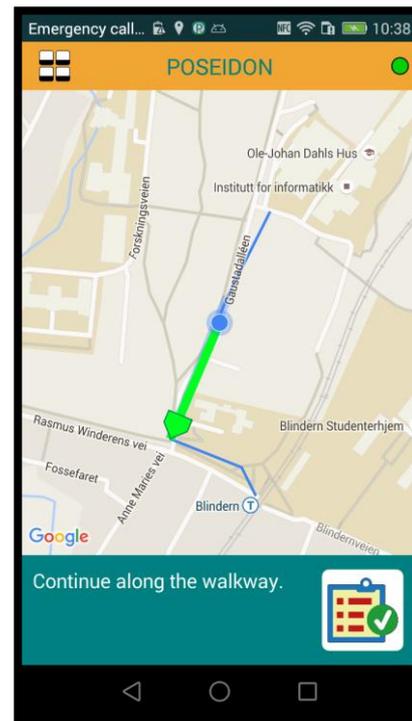
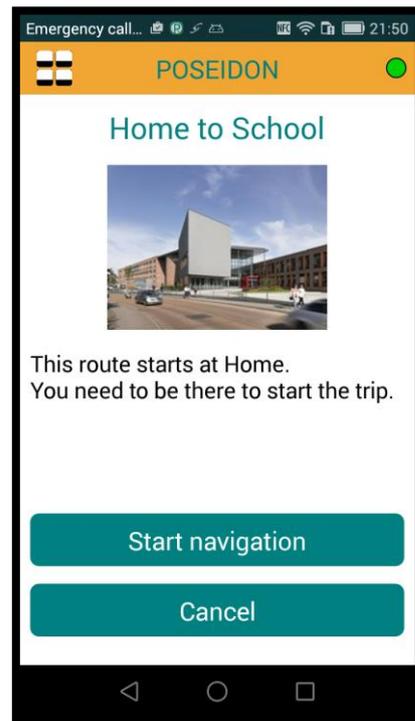
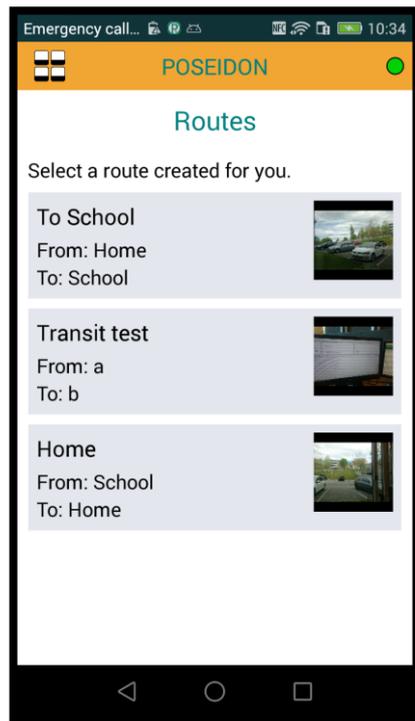


The POSEIDON applications

- The **POSEIDON app** supports daily planning, traveling, shopping and personal video clips. The main menu gives the user with Down syndrome the following options:
 - **Routes** – Start navigation by using planned routes
 - **Preferences** – Turn on/off position tracking and choose colour themes
 - **Calendar** – View planned events and add new events
 - **Videos** – View videos that are uploaded by the carer
 - **Training** – Access the Money Handling Training app
 - **Shopping** – Access the Money Handling Assistance app



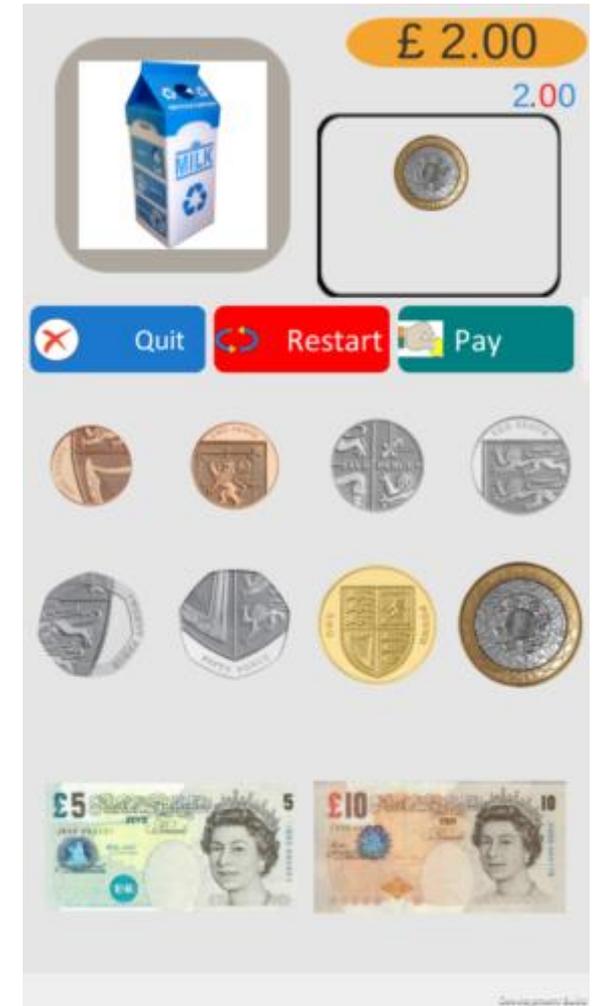
POSEIDON Navigation Apps



The POSEIDON applications

Money Handling App

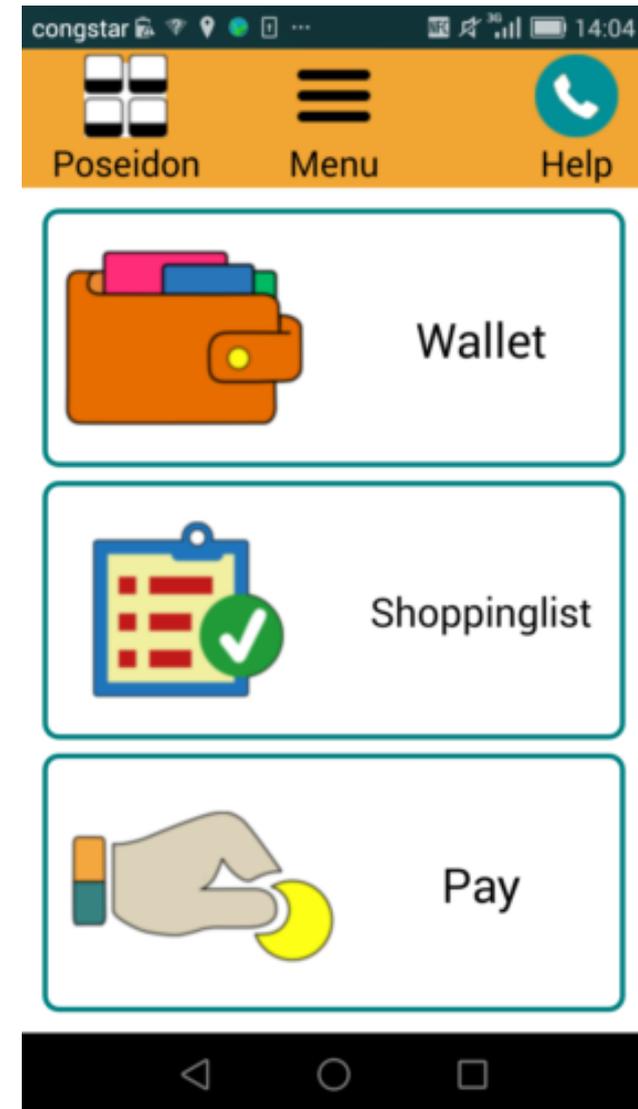
- Developed to strengthen their competencies regarding money handling
- The aim is to increase their knowledge about the value of money and how to pay for certain products.
- It is about choosing the correct amount of money for the priced product being displayed on the screen
- Carers can make shopping lists on the Web for carers by adding product images and prices.
- The shopping lists are automatically transferred to the Money Handling Training App in which the user can practice before going to the shop.



The POSEIDON applications

Shopping App

- Moreover, a Shopping App was developed which supports the users on the spot – when they are out shopping.
- The app gives an overview of which products to buy (the created shopping list), the price for each product and the total price including what type of coins and notes to pay with.



Methods

- User-centeredness was paramount for the success of the project.
- This means that from the beginning on, all stakeholders, as there are Primary Users (people with Down syndrome), Secondary Users (parents and carers) and Tertiary Users (teachers or supervisors e.g.), are included in all stages of the developmental process.

Methods

1. A requirement study was carried out at the beginning of the project (2013/14) with about 578 participants
2. Three workshops with other European Down's syndrome associations in different countries
3. First pilot study (2015) in Germany, UK and Norway with 9 families for four weeks
4. Extended Pilot, in form of a one-day event (3 countries)
5. Second pilot study (2016) in Germany, UK and Norway with other nine families for four weeks

Results

Vienna, 23.05.2017

Mayor results of the requirement study

- The major result of the survey is that people with Down Syndrome have highly divergent competencies - some of them can do a lot of things on their own, some cannot do things at all, and a larger group is able to do things with help.
- People with Down Syndrome can do many things when help is provided.
- It became clear that people with DS need support to handle time, money and mobility to be more independent.

Major results of the Pilot Studies

First Pilot (2015)

- The general impression was that all participants seem to like the idea behind the POSEIDON applications and the POSEIDON vision itself.
- A lot of problems had to be overcome, but the participants were aware of the limitations of the system.
- There was still room for improvements. Especially usability and user experience, safety and personalization aspects had to be considered for further developmental activities.

Major results of the Pilot Studies

Second Pilot (2016)

- The POSEIDON functions had been revised based on the experiences of the first pilot, the extended pilot and the workshops and some new functions were integrated.
- The system worked more reliable than during the first pilot.
- All participants see the potential of POSEIDON to increase the independence and autonomy of people with Down syndrome, the potential for a better organization of daily tasks and for a higher mobility.



Using the POSEIDON Navigation App

Mayor results of the Pilot Studies

Second Pilot (2016)

- By combining different POSEIDON apps the users could organize and conduct different daily tasks.
- They could for instance do a shopping tour completely on their own:
 - Creating a shopping list
 - Organizing the money for the planned purchase
 - Planning and training the route to the shop with the Home Navigation System
 - Using the navigation app to go there
 - Doing the shopping and paying on their own
 - Going back home again with help of the navigation app

Using the POSEIDON
Shopping App



Vienna, 23.05.2017

Conclusion and prospects

- POSEIDON contributes to the field of smart environments where there is little done before for people with Down Syndrome. Not much is really known about their interaction with technology.
- Results of the project indicate that information technologies are of great importance for people with Down syndrome and that the developed POSEIDON applications can be a great support to increase their independence and inclusion into society.
- All participants see the potential of POSEIDON to help people with Down syndrome to become more independent and autonomous in their daily lives.

Conclusion and prospects

- The benefit is very individual for each person with Down syndrome. According to their individual challenges and abilities, they consider different functions as most helpful and supportive.
- All participants could master the technology and this had a positive impact on their self-consciousness.
- They had fun testing POSEIDON and were proud to be a part of the project.
- Most participants would also like to use POSEIDON in the future, at least specific functions.

Contact

Dr. Eva Schulze

BIS – Berliner Institut für Sozialforschung

Brandenburgische Str. 16

10707 Berlin

030 / 310 009 0

e.schulze@bis-berlin.de

www.bis-berlin.de