Maintaining life change and supporting maintenance with design – what can we learn from Twelve Step recovery?

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Abstract
The project has created a design for a mobile service for personal Twelve Step work and situated Twelve Step work within the space of internet therapy and mobile services. The Twelve Step program helps addicts to recover from addiction and obsessive behavior, and their families to recover from the effects of living with an addict. Since recovery touches upon all aspects of life, mobile technology is a useful tool. The design presented below consists of three functions:

- compiling the daily rhythm – helping users reflect over their routines through data collection and visualization,
- rolling the dice - helping users break out of negative thinking by suggesting activities,
- a gesture for letting go – helping users let go of issues they cannot handle.

They are grounded in interviews and literature and will be further tested in future projects. Here, they are described and their minimal technical requirements are listed.

Keywords: lifestyle change, maintaining lifestyle change, design, Twelve Step recovery

Introduction

Alcohol and drug abuse create severe problems in the long run, for the addict as well as to their friends, colleagues and relatives. The cost to society is also significant in terms of health care, social problems, and criminal activity. Treatment alternatives range from Cognitive behavior therapy, to medication with Antabuse, to detox programs, to self help such as the Twelve Step program or Swedish Länkarna. The format of the treatment can be anything between separate sessions with a therapist to inhouse care around the clock. Regardless of treatment form it is no easy task to recover from addiction, and it requires fundamental life changes.

In the present project we have chosen to use the Twelve Step program as a framework since it is a form of self help that has been used for a long time and is well established all over the world which shows that it works in different cultures. It also offers the same amount of help to addicted people and to their
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friends and relatives. The project results will most likely be relevant for other forms of self help in the addiction domain.

The Twelve Step program is a program for self help developed by Alcoholics Anonymous in the late 1930s. It has since been applied to many other addictions such as narcotics, gambling, over eating, sex and work, as well as the effects of living with people with addiction. All Twelve Step fellowships are independent from any sect, denomination, politics, organization or institution. Members are fully anonymous; no member records are kept and there are no fees. The program has helped millions of people to recover so far. The Twelve Steps are also used by treatment facilities as a part of the treatment, but that form of use has not been examined in this project.

According to the Swedish National Institute of Public Health 4.7% men and 2.6% women are addicted to alcohol [12] which means 3.6% of the Swedish population or about 324,000 people. About 16% men and 10% women have risky alcohol habits [19]. These numbers are based on self assessment, i.e. this percentage of people have themselves given information that show their addiction or risky habits. Since denial is common around addiction and drug abuse this is most likely only the tip of the iceberg. However, a large group of people are affected. The numbers for narcotics and medical drug abuse are lower, with estimated 29,500 people addicted to narcotics and 65,000 people addicted to medical drugs in Sweden [13]. Both abuse of alcohol and narcotics have increased the past five years [13].

Addiction affects people around the addicted person. Even though they might not take the drug, they are afflicted with the consequences of addiction and forced into the game around it. If by a conservative estimation, each person addicted to alcohol affects four others in the family, social circles or workplace, more than a million people are affected by alcohol abuse in Sweden. In addition to them we have friends and relatives of people addicted to other drugs.

The foundation for this project is first the fact that Twelve Step work touches upon all aspects and all situations in life, and second the fact that recovery through the Twelve Step program depends on communication with other members of the fellowship. This makes mobile ICT a potentially practical support tool in the recovery work.

**Goal and Purpose**

The project has created a design for an online service that supports recovery work within the Twelve Step program. The design is grounded in existing literature as well as in empirical material and support identified needs without trying to replace human contact. The design will be used as input in future research projects where it will be implemented and tested.

The design primarily targets personal work with the program, not work carried out in a meeting or otherwise in groups. However, opportunities to share with others have been considered. Service work is not included in the design.

Since there are no authorities within the Twelve Step fellowships and no one is responsible for someone else’s recovery or teaches how to recovery in any other way that sharing their experience, internet
support for Twelve Step work would be different from most other attempts to use internet for therapy or treatment. Those attempts usually try to replace the contact with doctors or other clinicians, or give increased access to them for example in off hours. Therefore it is important to identify what is compatible with the Twelve Step philosophy and what is close to treatment.

The project has no intention of designing a virtual therapist or a standalone application that can treat addiction. Our aim is to support existing recovery work that takes place in the real world. The core of recovery work must come from an established framework or therapy that ensures that recovery stays in focus. Online support forums without such framework easily transforms into tools for sustaining the addiction. In Barratt’s study [6] on online discussions on drugs many threads concerned how to find drugs, and Campbell Eichhorn’s study [7] on online support groups for eating disorders revealed many comments on how to eat less or how to hide the problem. We are not interested in supporting that kind of exchange.

## Project description

### Method

#### Interviews

Eight semi-structured deep interviews were conducted, lasting from 45 minutes to two hours. All interviews were recorded, transcribed, and analyzed with open coding. The focus of the interviews was on personal work with the program, not what participants did together with sponsors or how they participated in meetings. Participants were aged between 23 and 64, and had 2-23 years of experience in the program.

<table>
<thead>
<tr>
<th>Id</th>
<th>Gender</th>
<th>Age</th>
<th>tid</th>
<th>Fellowship/s</th>
<th>Worked the Steps</th>
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<tbody>
<tr>
<td>P1</td>
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<td>46</td>
<td>20 years</td>
<td>Al-Anon, OA</td>
<td>Yes</td>
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<tr>
<td>P2</td>
<td>M</td>
<td>64</td>
<td>23 years</td>
<td>AA, OA, SLAA</td>
<td>Yes</td>
</tr>
<tr>
<td>P3</td>
<td>M</td>
<td>23</td>
<td>2 years</td>
<td>AA</td>
<td>Yes</td>
</tr>
<tr>
<td>P4</td>
<td>F</td>
<td>26</td>
<td>5 years</td>
<td>AA</td>
<td>Yes</td>
</tr>
<tr>
<td>P5</td>
<td>F</td>
<td>63</td>
<td>14 years</td>
<td>Al-Anon</td>
<td>At Step six</td>
</tr>
<tr>
<td>P6</td>
<td>F</td>
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<td>7 years</td>
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<tr>
<td>P7</td>
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</tr>
<tr>
<td>P8</td>
<td>F</td>
<td>34</td>
<td>6 years</td>
<td>Al-Anon</td>
<td>At Step seven</td>
</tr>
</tbody>
</table>

#### Design process

A design workshop was held with the author and an industrial designer based on the analyzed interview material. A brainstorming session was conducted to generate ideas and suggestions in addition to those who were found in the interview material, and themes and alternatives were constructed. Three
Short overview of the Twelve Step Program

The Twelve Steps are a personal guide to recovery that is preferably worked with a sponsor, a mentor that has worked them before and can share his/her experience.

The personal Twelve Step work aims to change behavior and ways of thinking in order to get away from the addiction. The work is done through attending meetings to hear others experience, personal conversations and meetings with a mentor, reading of Twelve Step literature, and finally to try to apply this in everyday life. The broad order of the work is to acknowledge the problem, find a spiritual connection, sort out one’s past to be able to leave it behind, mend social relations as far as possible, and when some recovery is obtained share that experience with others. No one in the fellowship has authority over anyone else or is responsible for anyone else’s recovery. Everything is done on a voluntary basis. Members who have recovered share their experiences with those who want to recover themselves. The oldest and best known Twelve Step fellowship is Alcoholics Anonymous, AA, that is active in more than 180 countries. AA’s own information about the Twelve Step program can be found on their web site, www.aa.org or www.aa.se, or in their basic book Alcoholics Anonymous [1] that is available in many libraries and can be ordered from the web page. Later, the Twelve Steps for personal recovery were complemented with the Twelve Traditions that guide the groups and the fellowships, and the Twelve Concepts that guide the service work, i.e. the practical work that is needed for the organization to function locally, nationally, and internationally.

<table>
<thead>
<tr>
<th>The Twelve Steps</th>
<th>Guidelines for personal recovery</th>
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<tbody>
<tr>
<td>The Twelve Traditions</td>
<td>Guidelines for the fellowships</td>
</tr>
<tr>
<td>The Twelve Concepts</td>
<td>Guidelines for the service work</td>
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Even though the Steps have been adapted to other issues than alcohol, the general view is that it is one program used for different problems. Hence, in this report the term program will refer to the Steps, while the term fellowship will refer to the different organizations. Alcoholics Anonymous (AA), Overeaters Anonymous (OA), and Al-Anon Family Groups (Al-Anon) are different fellowships using the same program.

The most important building stones for both individuals and fellowships are: sharing of experience, identification, and participation. By sharing experience members can recognize themselves in others and feel that they belong in the fellowship. When members share their experience, newcomers can relate to and see their own problem as well as realizing that the program can work for them. They can identify with others. By participating in all kinds of practical matters that is needed to make the organization function locally, nationally, and internationally members create a strong feeling of being a part of and belonging to the organization. The main arena is the meeting where members gather regularly.
Meetings can be attended without signing up beforehand, no attendance lists are kept, and members take turns to chair.

The building stones are intertwined, by participating in service members meet and can identify with each other, sharing experience is one form of service work, members can identify with how others do service work

**Deliverables**

This report is the only project deliverable

**Results**

**Existing internet therapy and its relation to Twelve Step work**

Here, we will situate the project goal in relation to existing internet therapy. We will also describe existing mobile applications for behavior change in general and for Twelve Step work in particular. Theoretical frameworks commonly used for applications targeting behavior change will be described.

**Internet therapy**

Computers and the internet can be used in different ways:

1. a means of distributing non-interactive digital content cheaply, quickly and over large distance – improving access to for example information on addiction related issues,
2. a means for providing and distributing interactive digital content,
3. a means for (more or less) dynamically adapt the material through use of hyper links, text generation, automatic selection,
4. a means of communication – making it easier to get access to counseling through chat, video conferencing or email,
5. a means for giving automatic counseling through AI, as a part of other support or self sufficient.

The first three descriptions in the list above roughly correspond to what Walters et al. [20] described as the first, second and third generation format for interventions with addicts. To us, is seemed important to add the fourth description since the computer as a communication tool for clinician and patient is an important part of CBT over internet. The fifth description, which might not be entirely realized yet but partial examples exist such as Mando's expert system Dr Cecilia, helps limit our scope since we are not aiming to create solutions that replaces clinicians or social support.

In the literature, the term internet therapy is used for all five descriptions, and combinations of them. What most studies of internet therapy have in common is that they are compared to traditional face-to-face therapy, and developed as an alternative to that form of treatment. Internet is hoped to provide cheaper treatment that is accessible in remote areas and for clients with odd hours [14]. However, it is
important to make a clear distinction between distributing material for self help over the internet, using internet to connect clients and clinicians, and creating internet applications that replaces the clinicians.

Interventions over internet have proven useful for a number of mental issues such as panic disorder, depression [5], and PTSD, and also for conditions such as tinnitus [2] and obesity. In these cases, it is mainly CBT that has provided the medical foundation for the developed internet therapy, and thus much of the focus has been on the role of the clinician.

In the present project, the targeted situation is not clients and clinicians but rather the equivalent of a network of clients helping each other through the sharing of experience. Our main focus is thus not to mediate between client and clinician, nor to simulate such a contact. We aim to support the exchange between members, and their personal work towards recovery. This is in no way a statement that internet therapy or CBT over internet is inferior to Twelve Step recovery. Each form of treatment has its purpose.

Existing commercial applications
The rising sales of smart phones have created a new market for mobile services. Handsets with high resolution touch screens, large storage capacity, and built-in sensors have opened up for services we could not even dream of in the ages of WAP or 3G.

Mobile apps for behavior change
Exercise is the most common domain for mobile services that targets behavior change with examples both from research and the commercial arena. The Ubifit project worked on automatic recognition of activity to relieve users from data input, and combined it with visual feedback to create motivation [9], whereas Ahtinen et al. restricted their application to the activity of walking but offered goal setting and the ability to represent the goal as a journey to support motivation [4]. There are also a number of commercial products in the exercise domain. Some combine hardware for data collection such as Polar pulse meter or Bodymedia FIT armband, with software to compile and visualize collected data, while some are pure software that relies on built-in sensors in the phone such as Noom weight loss or Runkeeper.

What these services have in common is that they focus on simplifying data collection. In addition, the type of data they are able to collect is rather simple as long as the right sensor is available, such as GPS for distance or a pulse meter for pulse.

A project closer to our goal is the Affective Health application, that is using sensors to collect body metric data and visualizes it to help users reflect upon health issues such as stress and well being [18]. Although we are not interested in using sensors, the stance of allowing users to reflect on their behavior supports our ideas.

12 step apps
There are few available stand-alone applications that target personal recovery from alcoholism or other addictions, but the recent advances of Apple’s App store and Android Market have opened up possibilities for small entrepreneurs to create mobile apps and distribute them. A search in App store for
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Apps related to AA, recovery, sobriety, gratitude, or Twelve Step work returned a number of apps. However, most of them were focused on providing media such as electronic access to books, audio recordings from AA meetings, or movies from youtube, such as the 12 Steps AA companion. A small number provided simple tracking functionality or rudimentary journal keeping functionality, such as iPromises. Social features were limited to address books for recovery buddies (12 Steps AA companion), with the exception of Sober that provided a chat in addition to media. We believe that functionality for easy tracking of meeting attendance, mood, or sponsor contact can be very useful, and tracking allows for a compilation that shows behavior over time. Our aim, though, is to provide a slightly richer material for reflection, and to take advantage of the existing offline community by allowing contact between users and sharing of content.

Even though these apps are conceptually simple and do mostly provide digital access to already existing material, they make it considerably easier to think about recovery. Cell phones or smart phones are important personal possessions that we carry at all times and recovery apps tap into our habits of playing with the phone during moments of free time [16]. We believe that the technical capabilities in combination with cell phone habits could provide powerful support in daily recovery work in combination with other activities. A single app will never be able to cure people from addiction.

**Theory**

There are a number of theories that have inspired technology for behavioral change.

The transtheoretic model of behavior change [17] is used to describe the process of dealing with addiction. It identifies five stages that a person goes through for example when trying to quit smoking. **Precontemplation** is the first stage which occurs before the person realized drinking is a problem. People in precontemplation do not want or plan to take any action in the foreseeable future. **Contemplation** occurs when a person would like to quit drinking in a near future. **Preparation** occurs when a person are taking certain steps toward quitting such as cutting down or gathering information about treatment options. **Action** occurs when a person actually quits. The last stage is **maintenance** which occurs when a person has quit drinking and tries to stay sober. Prochaska et al. concluded that the stages occur in many domains of addiction, and that different treatment interventions are needed in the various stages. For example, people in the contemplation stage are more likely to benefit from information campaigns compared to people in precontemplation, while the contemplators might not be able to accept and benefit from instrumental advice on quitting such as how to deal with withdrawal symptoms.

Goal setting theory [15] claims that explicitly setting goals help people achieve their goals under certain conditions. If they have chosen their own goal, the goal is important to them, and challenging yet within reach people improve their performance using goal setting. The original theory was formed within workplaces and concerned employees improving their work performance. Since then, it has been used in various areas such as exercise [8], energy saving [3], and weight loss.

Feedback of progress has been used in combination with goal setting in many studies on for example energy saving [3, 10] which have shown that feedback and goal-setting in combination is much more effective than only goal-setting.
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The area of persuasive technology [11] have come to combine theories for behavior change with technical features such as sensors for data collection, contextual reminders, and visualization to achieve behavioral change.

We have chosen the Twelve Step program as the framework for this project where the basic assumption is that to be able to accept help and benefit from it you must accept and acknowledge the problem. In terms from the transtheoretical model of change, which in no way is used in the program, this would put members of the Twelve Step fellowships in the action or maintenance phase. The only motivational mechanism used in the program is examples, members who share about their recovery and the positive changes in their lives that has come out of recovery motivates others to continue the recovery work. Goal-setting, or rewards are not used.

The participants in the present study would according to the transtheoretical model of change be in the maintenance phase.

**Intervjuerna**

**Identification/sharing/passing it on**
The driving force in the Twelve Step fellowships is the sharing of experience. Members share their stories about how their life was before they came to the program, what made them decide to come to a Twelve Step fellowship, and how their lives are today. Newcomers can identify with stories about other members’ lives before the program, and get first hand evidence on how the program can help them. If their present life is similar to such a story, they can come to trust that if they do what the speaker did, they will get the same life change. The sharing of personal stories takes place in meetings, in personal, one-to-one meetings, over the phone between friends, sponsor-sponsee, and also in the literature where personal stories are frequently featured.

*The thing that has helped me the most, is definitely the identification ... that’s always what hits me, you know, when people start talking, and talk about my feelings and my experiences as theirs ... I’m not alone.* P6

All our participants reported that it was important for them to attend meetings regularly, and they usually increased their meeting attendance if they did not feel well or were going through rough times. When asked why meetings are so important participants cited that it is a good way of breaking isolation, listening to other’s sharing live makes it easier to understand and take in compared to reading the literature, it is an easy way to get access to the program, and that they meet many of their friends in meetings.

All our participants did basic service work in their home group such as helping to set up the meeting, making coffee etc. P3 also held the position as treasurer, and P4 as greeter in their respective home groups. Four participants had service positions outside their home group, P6 as Alateen sponsor, P4 as a General Service Representative, P7 as area delegate and P8 as member of a planning group for a large Al-Anon conference in Sweden. They reported that service was a good way of creating a sense of
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belonging. Helping out made them feel as they were a part of the fellowship. They also felt it was important to give something back to the fellowship and contribute to it for the future.

*When I started doing service, I got in to, I became a part of the fellowship in a way I don’t think I would have become without it.* P4

Sharing personal stories is not only important for introducing new members in the program, and to inspire existing members to continue their work. It is an important action for the person who does the sharing too. Several of our participants reported that they benefitted themselves from sharing their story. It helped them reflect on their current status, highlighted the past in a way that made their progress clear, and reminded them of their journey through recovery.

*Well, for me it is very good to tell my story, to see how far I have come. When I get some perspective, you know.* P6

*In a way I tell myself too, at the same time as I tell someone else.* P8

A very overt way of sharing recovery is to be a sponsor. A sponsor guides a sponsee with less experience in the program in the recovery work. A sponsor-sponsee relation can go on for many years and offer many opportunities to share success and failure in the program. Seven of our participants had a sponsor (P1 did not have one, P6 had two). Five participants were sponsors themselves, and two had been and would accept a sponsee if asked. P2 had a fixed time of the week when he always called his sponsor; the others contacted their sponsor when they needed to talk about something.

*[on being a sponsor] it’s really important. In a way participate, because then I’m in the program in a way. Then I feel that, that is the optimal way, you know.* P2

*Sponsoring is to make the journey with a newcomer, and thereby revisiting your past and reliving your own journey.* P4

The personal meeting, the contacts with others, and the engagement are invaluable. A design that supports recovery within the Twelve Step program should not be centered exclusively around the individual. It should to some extent be situated in a group and support group activities such as sharing or awareness of others.

**Establishing routines**

It is difficult to make changes in life and recovering from addiction or the effects of living with an addict requires a lot of change. Old habits must go and new habits need to be built up. A lot of different actions need to be taken to succeed with major life change. One action can be to avoid old places, old people, and old situations and thus try to avoid triggering bad habits. Another action can be to create new habits and new ways of acting to replace the old ones. This usually takes time and exercise, but with effort and patience it is possible. Members of the Twelve Step fellowships try hard to create new habits and new routines. With a routine of for example going to meetings Monday, Thursday, and Sunday, or calling a sponsor every Monday at 7pm, there is no room for hesitation, or bargaining about recovery. The goal is to stick to the routine regardless of mood and motivation knowing that it will boost the recovery in the long run.
All our participants had various routines connected to their recovery work, some of them daily, others weekly or less frequent. Some routines were rather simple, such as reading from a daily reader every day and trying to focus on that topic during the day, or going to regular meetings. Our participants reported going to meetings between one and four times a week, and four of them were using daily readers.

Well, I try to read every morning, today’s text so to say. Now, I have both of them [books] so I try to read one in the morning and the other in the evening. P7

Other routines were more complex such as sponsoring other members in the fellowship, following a meditation regime such as qi gong or ACEM, or participating in regional service work.

Several of our participants reported that it was important for them to have routines in their recovery work. The routines helped them to stay on track in their recovery and to feel sure that they were prepared to meet the immediate future.

If I would skip my morning meditation, now that has not happened in years, but if I would, I know by experience that I’ll have a fairly bad day. P4

P3 reported that if he deviated from his routines to contact other members, such as his sponsor, he lost confidence in their relations and started to question himself. As long as he could stick to his routine his old anxiety of others not liking him stayed away.

Then the thoughts start to come, ‘he is probably busy, he hasn’t time for me, he doesn’t want to talk to me’. But if I call regularly, just to say ‘Hi’, then those thoughts go away. P3

For our participants, routines were crucial tools both for supporting desired behavior and thinking, and avoiding undesired behavior and thinking.

**Good intentions meet everyday life**

Participants reported difficulties with establishing some routines, even though they were connected to important goals or activities they liked. Real life presents practical challenges, changes of plans, and compromises that need to fit with the routines. Some problems our participants reported had to do with the time of day where participants tried to create routines, for example many of them struggled with their morning routines. Mornings are often busy with preparations for work or school, and some of our participants just had trouble getting out of bed early enough to fit some recovery work into the morning.

I used to get up early and meditate for twenty minutes every morning, but then I thought I could sleep a bit longer instead. So it is not easy [laughs] P3

Family duties can also make it complicated to establish routines for recovery work. Several of our participants had children who needed attention, and help to get ready for school or after school activities. The most obvious examples came from P6 who had a five months old daughter who needed a lot of attention. After the birth of her daughter, P6 reported she had to come up with totally new routines for her recovery work, sometimes stricter than before she became a mom since the room for
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compromises or improvisation now was slim. Even though her daughter had top priority, she sometimes found it hard to be forced to set recovery aside.

*I would love to have those five minutes in the morning, I get so envious when I hear people say they light a candle to start the day, take a quiet moment and read today’s text. I start the day with a diaper change.* P6

Deviations from everyday life could also make it difficult to keep up the recovery work. Participants gave examples of both happy occasions and sad events where they had lost track of normal routines. P5 talked about how easy it was to forget about the program when she traveled, and therefore appreciated very much when she could find a meeting at her destination. P1 reported different reactions to two family crises, one where her qi gong routines fell apart and one where she could keep them together.

*It got very chaotic when my son tried drugs, so I quit everything. Let go of the qi gong, just like that. And I didn’t even notice. ... But then, then when my father was dying I stuck to it, I did qi gong in the hospital. ... Sometimes it is easier in crisis than in everyday life.* P1

As P1 describes it, crisis can also be a motivating factor for recovery work. In hard situations familiar routines can provide comfort and safety.

**Plan B – when the routines fail**
As described above, routines were important for our participants but also difficult to establish and maintain. Everyday life does not always lend itself to good intentions and reasonable plans. Even though the purpose of a routine is to do something specific regularly and with as few exceptions as possible, it can be very useful to have a plan B when plan A fails. Many of our participants reported that they just tried to get back to their regular routine if they got sidetracked for one reason or another. But some of them had backup plans for certain situations, for example P8 had a short version of her morning meditation that she could do on the train if she overslept.

*I don’t have time before I leave home I do it on the train [the quiet moment]. And then it’s handy because I have email in my phone so I can read those emails [from a recovery mailing list] there.* P2

P6 had started to rethink her view of having a quiet moment to start the day like she heard other people talking about. Since she had realized that such a routine was incompatible with her current family situation she tried to fit that moment into another part of the day.

*I’m thinking it would be more practical to turn it around, and, maybe, have that moment in the evening. Just lock myself up for five minutes and finish the day instead. ... Think about tomorrow in the evening instead.* P6

She had not tried to put that in place yet, but the insight that there might be a better way was an important step. Routines need to be reasonable to work, and everyone needs to find their own solution. Reflection over why routines do not work, and how they could be improved is needed on a regular basis.

**Getting out of negative thinking or behavior**
An important task in Twelve Step recovery is to get rid of old unwanted behavior or thinking, and to try to establish new habits, new ways of thinking, and thus new behavior. This is no easy task and usually takes a lot of time and effort, even with help from a sponsor and support from friends in the fellowship.
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Measures for avoiding getting stuck in bad thinking or bad behavior involves striving to act in a way that does not create or feed it, learn to recognize it, and when recognize it take action to break it. A simple example could be a person who often is late for work, gets yelled at by the boss, and then obsessed about that during the rest of the day. A way to break this vicious circle would be to try to be on time to avoid getting yelled at. If it still happens, a better way to deal with it would be to call a friend and share about the situation, or focus on the job at hand, and then let it go instead of obsessing about it.

All of our participants struggled with this at times, and tried to establish routines for situations when they found themselves thinking or acting in unwanted ways. This included preventive actions such as regular meeting attendance and regular meditation as described above, and regular contact with sponsors or friends in the program to assure it would not feel awkward to contact them in times of need.

*With the help of the books [daily readers], you can get some, direction in your thoughts. Replace some thoughts with other thoughts. [you] get help with that.* P1

The general engagement in the fellowship also proved to give useful help in breaking out of negative thinking. Several of our participants were sponsors or otherwise involved in service work. These activities made other people contact them, and also required attending meetings in addition to the regular meetings they went to. Often such calls or meetings seemed to occur with excellent timing and helped them focus on healthier things.

*Sometimes when I get home after a long and rough day ... and feel VERY sorry for myself [laughs]. Then a sponsee calls and want to talk about a trip, a relation or anything. Eh, We talk a bit, hang up, and that, that MAKES my day!* P4

Our participants also reported that any kind of action, no matter how simple, often helped them get out of their distorted thinking. It did not have to be a program related action, just something that they could focus their thinking on for a while.

*Well, it could be reading a novel, or something. Read a newspaper, solve a cross word puzzle, listen to the radio, eh, actually call someone and say hi, get out of the house. Anything.* P1

**Use of technology in recovery work**

Since the main purpose of this study is to generate a design for a mobile service for Twelve Step support, we asked participants what kind of technology support they used in their recovery work and to what extent they used it. To our surprise, rather little technology were used even though half of our participants were younger than 40.

The most predominantly used piece of technology was of course phones, both land lines and cell phones. Phones were used for social contact between meetings, for sponsor-sponsee contacts and Step work, planning of sponsor contacts, and efforts to break negative thinking and behavior. All participants had cell phones and used them for calling members in the fellowship. Text messaging was frequently used as a communication means by all our participants, but a few of them had established specific routines and uses for texting. For example, P2 wrote down things he wanted to let go of, such as
problems or conflicts, and “sent them away” in a text message. He had made a deal with friends in the fellowship that when they received such messages from him they were not expected to reply. To him it was a practical gesture of letting go and not an invitation to a conversation.

Four participants had tried to participate in technology mediated meetings, with varied success. P1 had participated in phone meetings in one of her fellowships and found them a valuable complement to face-to-face meetings. Since her two fellowships only offered one meeting a week each in her hometown, a phone meeting could fill the need when she could not make it to a regular meeting. P2 had tried to participate in phone meetings in a fellowship that did not have meetings in his country but could not make it work. P6 and P8 had tried to participate in online chat meetings without success. P6 reported that it did not work, and P8 reported that she was the only one in the meeting.

P6 was the only one using email in her recovery work. She reported that she regularly used email to communicate with her sponsor since the writing process helped her to work through her feelings and made it clearer what her problem was and what kind of help she needed to ask for. Her sponsor sometimes replied by email and sometimes contacted her by phone in return.

P2, P6 and P8 used digital recordings in their recovery work. In many cases, people that share how they work the program are recorded and the recordings are distributed in meetings and on the web. Our three participants reported that they downloaded such recordings to their cell phones or portable mp3 players and listened to them on the way to work, or on walks. P8 found it easier to connect to a personal story when it was spoken compared to reading it in a book, and P6 said it was one of her few moments of contemplation during the day.

One example of use of a mobile app came up in the interviews. P6 reported use of an iphone app where she every day could take note of five things she were grateful of. To her, the phone offered a quick and simple way to do this which integrated more easily with her everyday life than paper and pen. She always carried her phone, she could take advantage of any short free moment which was crucial since she had a five months old baby to take care of and thus had difficulties finding time.

The interviews show that there is both interest and need for technology support in Twelve Step recovery, but also that it is important to master the technology. We believe that it is crucial to let users use the technology they are familiar with, otherwise the threshold is too high.

Design
We will here present general themes and specific functions for our design. First we will present two themes for the design that fundamental to all functions, sharing and reflection. Then we will describe three functions that together will constitute a mobile service for supporting recovery.

Sharing
Sharing is one of the cornerstones in the Twelve Step program. It is an important tool for recovery since it allows for identification and serves as the proof of success. In addition, other members’ successes, failures, reflections, and actions provide an excellent mirror. Members can see themselves through
Reflection
Personal reflection is crucial to recovery. When trying to make changes in life, it is important to reflect over the current situation and the past to be able to take action for the future. Our design aims to support reflection upon two types of content, personal and common content.

Personal content: in our case, personal content consists of how the service is used, and content that users input. Material on how the service is used would be for example the use rhythm, distribution of use between functions. User input would be content users actively share (personal stories or comments), feedback they enter on how the functions work for them, and modifications and additions they make to the service.

Common content: awareness of what other users are doing with the service, their use rhythm, and the material they share. The common content can provide reference points that users can relate their own situation to, and can also provide new insight and a fresh perspective. The purpose of giving access to material about others is not for users to compare themselves with others but to be inspired by them.

By giving users this data in an accessible form, they are given tools to reflect over their own behavior and maybe find patterns over time and learn what is and what is not successful in their way of coping, without anyone telling them what right or wrong.

Context information could be a valuable tool for reflection as well. Many high end cell phones are equipped with sensors such as GPS, accelerometers, or thermometers which can provide basic information about situations in which our service has been used. Such context information can act as a memory support and make it easier for users to reflect upon the data at a later time.

Functions
We will here describe three functions of our target service in more detail. Focus will be on their purpose and intended usage rather than their specific implementation.

Compiling the daily rhythm
Motivation: All our participants tried to create routines for their recovery work and sometimes struggled to both establish and maintain such routines. Since everyday life is highly individual and complex, we do not believe that a service could suggest working routines for all users. However, a
service could collect data that show users’ daily rhythm and present it as material for reflection. It could also remind users to try to find room for routines.

**Description data collection:** using available information such as sensor data (position, sms tickets, movement), calendar information, communication patterns, and use of the designed service. A visualization of the daily rhythm can help users identify slots in the day or week where there are opportunities to find time for recovery work.

**Description reminder:** – reminding users to stick to a routine they are struggling with, such as morning meditation in the case of some of our participants, can cause irritation. Moreover, if users have difficulties meditating in the morning chances are that many times the reminder is useless due to external conditions. We believe that users would benefit more from support in finding room for routines. Instead of reminding them to meditate our service would remind them to think about when it would be suitable for them to do their meditation, or other recovery work they want to do. The service would ask users in the morning when they think they have a moment for recovery work during the day, or in the evening when they did have such a moment during the day. Based on users’ answers the service over time can show them when possible slots are likely to show up. The morning and evening question can also be used in combination to help users get more realistic in their expectations.

**Minimal technical requirements:** Collecting data requires a mobile device with at least some sensors and the ability to run an application that collects data. Processing could be done on a server, while capabilities for showing a visualization of the rhythm must exist on the mobile device.

**Rolling the dice**

**Motivation:** A reoccurring theme in our interviews was participants trying to get out of different kinds of negative thinking. They reported various routines for avoiding such situations and for breaking out of them when they happened. We propose a function that gives users a diverting suggestion on what to do, based on participants reporting that pretty much anything will help in such a situation.

**Description:** the function will contain a set of suggestions implying some degree of action, such as read a book, call a friend, take a walk, to provide a way of getting out of negative thinking and instead encourage action. Depending on the technical platform, the metaphor of dice can be used in the interaction through letting users shake the device to get their suggestion. In the case of simpler platforms, a suggestion can be requested through sms. The function would be launched with a number of alternatives to avoid cold start problems or thresholds that require users to come up with personal alternatives before use. However, users will be able to add their own alternatives and remove existing ones. A feedback function will also be available where users can input how they used the suggestion from the function and how it worked. Over time this can support users in finding working routines for getting out of negative thinking.

The personal use rhythm of this function can also help users reflect over which kind of situations that create problems for them, especially in combination with context information to support memory.
Minimal technical requirements: The basic part of this function can be executed through text messages, a user requests a suggestion by sending a text message, and gets the suggestion back in another text message. It can thus be used from any cell phone. Visualizing the use rhythm of the function however requires screen capabilities of a smart phone, and adding or removing alternatives also requires the interaction capabilities of a smart phone.

A gesture for letting go
Motivation: Many or our participants reported having strategies, or gestures, for letting go of things that they found problematic. Sometimes these gestures involved technology, such as sending a text message from a cell phone.

Description: the function would allow users to describe what they want to let go of and provide a gesture for letting it go. Advanced technical platforms would allow use of different media such as text, images, movie clips or sounds to describe the issue. The gesture could be created through graphics (putting the issue in a box, setting it on fire, let it fly away), messaging functionality (sending it away), or be a physical gesture using existing sensors in a cell phone (a throwing gesture or a boxing gesture). In addition to creating a physical gesture, our service would offer the possibility to reflect over issues that users have needed to let go of. Users can go back and review the issues, see if they are reoccurring or single items, and also reflect over the general rhythm.

Minimal technical requirements: A minimal version of the function could be sending a text message, which could be used from any cell phone. Again, reflecting over personal use of the function requires the screen estate and interaction capabilities of a smart phone.

Limitations of the design
Obviously, visualization will be an important part here. Being able to show various types of data in a pleasing and accessible way is key to be able to support users. However, visualization is highly dependent on available technical resources, and since no technical decisions regarding particular devices or platforms have been taken during this project the issue of visualizing data has been postponed to the implementation phase.

Costs
The total cost of the project follows the budget, 225 hours à 885 SEK/hour.

Evaluation and analysis

Evaluation of results
In according with the project plan, the design has not been evaluated within the project. The resulting design will be evaluated and tested through concept validation with existing technology, and implementation and user testing in future projects. However, literature and interviews have provided a
Future work

Next step will be to test the described functions separately using existing technology. This will give valuable information on how they are received by users, and how users will appropriate them over time. Using existing technology makes it possible to get user feedback quickly using a limited amount of resources. Since implementation requires a lot of time and resources, it is important to screen for early errors or problems in the design.

A research paper will be submitted to the largest human-computer interaction conference, Human factors in Computing Systems, by the end of September.

References

Final report for the project Design av en internettjänst för personligt tolvstegsarbete – en pilotstudie
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