

## WP4 E2C Impact Evaluation: Summary of all the studies

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# 1 Introduction

The task of Laurea University of Applied Sciences was to assess the impacts of the new service (to be launched on the market within the next three years) on the social connectedness of older adults during the user-centric service development process. At the first glance the task seemed rather impossible to execute. A totally new approach was needed.

Following the user-centric approach adopted in the E2C project we decided to rely on the opinions of the potential users, the test persons themselves, and to ask them to anticipate the impacts of the service concepts and prototypes. Thus we decided not to lean on the views of the designers, researchers, or the experts in gerontology when gathering feedback on the concept during the service development process. In the last stages of the project when the Storyville games had been finalized we discussed the anticipated impacts of Storyville gaming with the municipal and other experts in social and health care, and with the representatives of other projects focusing in developing preventive activities for the elderly.

## 2 Experience prototype test (Nov.—Dec. 2010): Anticipated impacts

We started our impact evaluation planning process by studying the well-known questionnaires on wellbeing, for example: WHOQOL ([www.bath.ac.uk/whoqol/](http://www.bath.ac.uk/whoqol/)), 15D ([www.15d-instrument.net/15d](http://www.15d-instrument.net/15d)), PGC Morale Scale ([www.abramsoncenter.org/pri/documents/PGC\\_morale\\_scale.pdf](http://www.abramsoncenter.org/pri/documents/PGC_morale_scale.pdf)), and LEIPAD (De Leo, Diekstra ym. 1998) and scales on social connectedness (e.g. Lee & Robbins 1995).

We compared the items in the scales to the desired outcomes identified in the E2C ethnographic study. We came up to the conclusion: the generic scales are not sensitive enough to be able to identify the changes in the everyday life of a senior the new service is designed to achieve. Therefore it was necessary to design a new questionnaire based on the understanding of the social connectedness among older adults adopted in the E2C project.

All the items in the new scale are based on the job categories and related desired outcomes identified in the ethnographic study. Example:

Job category and desired outcome:	Items:
"Ties between family – to be close and have space".	<ul style="list-style-type: none"><li>- It is possible for me to keep in contact with my close ones when I feel like it.</li><li>- I'm less worried how my nearest next-of-kin (children, grandchildren) are doing, and they are less worried how I am doing.</li><li>- The feeling of closeness between family members has grown stronger.</li></ul>

Altogether 30 items were constructed. The question was formulated as follows:

*Let's assume that you have utilised the service at least for some months or even for a year. Please, assess if the usage of the service has had any impact on your life and your wellbeing. Be free to use your imagination!*

Please, choose either "YES" or "NO". If it is very difficult to assess the possible changes, please, tick the option "Don't know". There are no right or wrong answers!

- 1 YES, the usage of the service has had some impact in this respect
- 2 The usage of the service has had NO impact in this respect
- 3 Don't know

In the experience prototype test in November-December 2010 three concepts were presented to the test persons. Two of the concepts, Do you remember? -game and Mirror Mail were linked with the innovation track called the Family Re-configurator which covers the job categories "Everyday practise – pursuits and activities" and "Ties between family", and the desired outcomes "Meaningful reasons to get our of bed" and "To be close and have space" respectively.

The 3. concept, Spritited Network, was linked with the innovation track called Assignment Finder which springs from the three job categories: "proficiency and competences", "human responsibility", and "new learning" and addresses the need for being able to perform in a certain social context.

Altogether 44 test persons filled in the questionnaires (one per each concept), 20 of them were 54-69 years of age and 24 were 70 years or older. The following table presents the percentages of the test persons who agreed with the item. When the percentage of Yes-answers equals or exceeds fifty, the results are highlighted with green.

Table 1.

Experience prototype test (Nov.—Dec. 2010): Anticipated impacts, % of YES-answers, N=44.

		Do you remember?	Mirror Mail	Spirited Network
1.	I'm more satisfied with my life.	30 %	50 %	61 %
2.	It is easier for me to adjust to the changes in life.	34 %	36 %	54 %
3.	I have something to look forward to.	57 %	50 %	80 %
4.	I perceive the joy of learning and the feeling of being capable more often than before.	45 %	45 %	70 %
5.	I'm more able to take contacts to persons I haven't met and establish new relationships.	39 %	41 %	80 %
6.	I feel myself a more useful person.	34 %	20 %	34 %
7.	I'm able to outline the life I have lived so far by reminiscence.	61 %	27 %	30 %
8.	I perceive that there is a new more meaningful stage of life opening for me.	27 %	27 %	48 %
9.	The feeling of closeness between my close ones has grown stronger.	50 %	59 %	32 %
10.	More opportunities to participate in leisure time activities and hobbies are presented to me.	32 %	34 %	86 %
11.	I feel safer.	48 %	45 %	32 %
12.	It is easier for me to find meaningful ways of utilising my competences and resources.	41 %	25 %	73 %
13.	I have something pleasant and interesting to pass the time every day.	39 %	30 %	61 %
14.	I'm more capable of carrying responsibility of my fellow citizens and the society as a whole.	25 %	30 %	39 %
15.	I get more new experiences and my whole life is richer.	43 %	41 %	75 %
16.	I'm less worried how my nearest next-of-kin (children, grandchildren) are doing, and they are less worried how I am doing.	20 %	55 %	25 %
17.	It is easier for me to keep in contact with my close ones when I feel like it.	27 %	64 %	20 %
18.	I'm able to tell and share the memories of my life, especially of those persons who have been important to me.	70 %	39 %	43 %
19.	The feeling of participation in certain groups or society as a whole has grown stronger.	36 %	36 %	77 %

Table 1 tells us that the 1. concept, Do you remember -game is anticipated to work as planned as to the desired outcome “Dealing with memories” (items 7 and 18). However, the concept seems to cover only one aspect of “Family ties”, the feeling of closeness, and only half of the test persons agree with the 9th item. Based on the feedback of the experience prototype of Do you remember -game, it will not succeed in reaching the desired outcomes related to “Everyday practice” (items 10 and 13). Younger test persons’ expectations toward the impacts of Do you remember -game were more positive than the older test persons’ expectations. The conclusion in a nutshell: the concept has to be developed further to cover more desired outcomes.

The 2. concept, Mirror Mail, was designed to cover the same desired outcomes as the game concept. The majority of the test persons agree with all the three items on “Family ties” (9, 16, and 17). It seems that the concept is very focused on strengthening the ties between family and perhaps between close friends, but its usage will not help older adults to reach any other desired outcomes related to social connectedness. Half of the test persons thought that the usage of the Mirror Mail might increase their satisfaction with their lives.

The third concept, Spirited Network, is expected to succeed in achieving the impacts it is designed for. It is anticipated to work fine with “Proficiency and competences” (item 12), “New learnings” (item 4), “Everyday Practice” (items 10 and 13). All in all, the Spirited Network concept could be announced as the winner if the decision was based on the anticipated impacts of the three concepts. However, in the questionnaire there were other questions, too, one of the very important ones being the question on the willingness to pay. The test persons were unanimous: nobody was willing to pay anything for the Spirited Network as the users themselves were supposed to be the content providers for the service. Conclusion in a nutshell: an excellent idea, much appreciated by the test persons, but no commercial potential. After a careful decision making process, Do you remember? -game was chosen to be developed further.

### 3 Demo tests (April—May 2011): Anticipated impacts

The experiences of the test persons in the demo tests in April-May 2011 can be summarized as follows:

- In Finland five out of six seniors expressed very positive feelings, one slightly positive after the testing session: *interesting, fun, refreshing, activates your mind, based on reality; some of the games need to be developed further*. Both of the Finnish female teenagers had perceived very positive feelings: *good entertainment, interesting, brought back memories*.
- In Sweden three out of five seniors expressed mostly positive feelings (*fun, entertaining, good atmosphere*); one had had slightly negative feelings (*tricky to handle the rules*).
- In Denmark one out of five seniors had perceived very positive feelings (*fun*); two had had rather negative feelings (*boring, confusing*). In the family setting, the middle-aged father and his teenage daughter expressed very positive feelings: *fun, interesting, good stories about personal photos*.

In the demo tests we gathered feedback on the anticipated impacts of the service in the similar vein than in the previous test. The scale consisted of nine items. The wording of some of the items was slightly modified.

Table 2.

Demo tests (April—May 2010): Anticipated impacts, % of YES-answers, N=16.

	Percentage of "Yes"- answers in 2011 (N=16)
I am able to better outline the life I have lived so far by reminiscence.	81 %
I perceive the joy of learning and the feeling of being capable more often than before.	75 %
The feeling of being related to other people has become stronger.	69 %
I'm able to tell and share the memories of my life, especially of those persons who have been important to me.	69 %
The feeling of closeness between my close ones has grown stronger.*	56 %
The sense of togetherness with my friends and peers has become stronger.	56 %
I'm more able to take contacts to old and new acquaintances.	50 %
I'm less worried how my nearest next-of kin (children, grandchildren) are doing, and they are less worried how I am doing.**	38 %
It is easier for me to keep in contact with my close ones when I feel like it.	13 %

\* All the players in the Family group agreed with this item.

\*\* All the seniors in the Family group agreed with this item.

The results clearly indicate that the Do you remember? -game concept had been successfully developed to cover more desired outcomes.

#### 4 The first field test (May—June 2012): Anticipated impacts

The Finnish test players were more critical than their Swedish counterparts. In Finland, some of the test games didn't work properly, and some of the photo stacks suddenly vanished. In one of the cases there were only two games saved on an iPad. Thus, the feelings of irritation and annoyance arose.

Positive, trustful and empowering interaction during the gaming sessions is a prerequisite for achieving any positive impacts in social connectedness. Considering the negative feelings some of the test players felt during the gaming sessions it is understandable that the anticipated impacts of gaming are minor than in the previous test.

Table 3.

The first field test (May—June 2012): Anticipated impacts, % of YES-answers. N=14.

	Percentage of "Yes"- answers in 2012 (N=14)
I am able to better outline the life I have lived so far by reminiscence.	64 %
I perceive the joy of learning and the feeling of being capable more often than before.	64 %
The feeling of being related to other people has become stronger.	36 %
I'm able to tell and share the memories of my life, especially of those persons who have been important to me.	29 %
The feeling of closeness between my close ones has grown stronger.	43 %
The sense of togetherness with my friends and peers has become stronger.	50 %
I'm more able to take contacts to old and new acquaintances.	36 %
I'm less worried how my nearest next-of kin (children, grandchildren) are doing, and they are less worried how I am doing.	71 %
It is easier for me to keep in contact with my close ones when I feel like it.	50 %

## 5 Final field trials (Oct.—Nov. 2012): Anticipated impacts

As part of the final field test a more detailed study on the interaction and game experience during the gaming sessions was conducted. We maintain that it is necessary to keep on playing the games and keep on discussing on the stories heard during the gaming sessions for a longer period of time to strengthen the social connectedness of the players, and thus prevent loneliness. It is the accumulated positive game experiences, and the accumulation of empowering interaction between the players that will in the long run lead to social connectedness, thus avoiding the risks of loneliness to come true. Social connectedness enhances physiological, psychological, and social wellbeing. (See Fig. 1 below.)



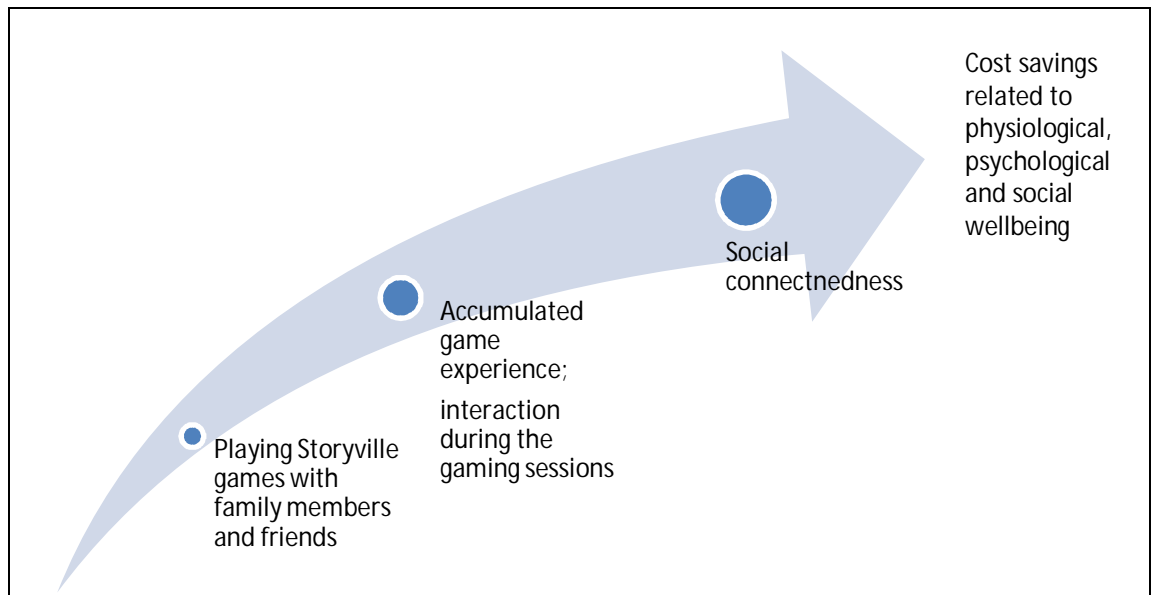


Figure 1.  
The impact process of Storyville gaming

### Feedback on the interaction during the game sessions (Final field trials, Oct.—Nov. 2012)

The interaction during the gaming sessions was perceived very positive by the older test persons (50 years or older). Almost all of them (94 %) said that the atmosphere amongst the players was relaxed. Nine out of ten players reported that the players showed willingness to help each other (90 %) and approval towards each other (86 %). Three players out of four felt close to other players (77 %) – thus it can be concluded that the gaming sessions offer opportunities for strengthening social connectedness among the players. The games succeeded in arousing interesting discussions during the session (74 % of all the older test players agree), and the other players listened to the stories told by older participants (72 % agree).

The feedback on the interaction during the game sessions is presented in the figure 2. The figure shows the opinions given by the older test persons, 107 test persons altogether, 31 from Sweden and 77 from Finland. 20 % of them were 50—60 years of age, 35 % were 61—70 years, 32 % were 71—80 years, and 13 % were older than 80 years.

## Interaction during the game sessions

Age group: 50 years or older (N=107)

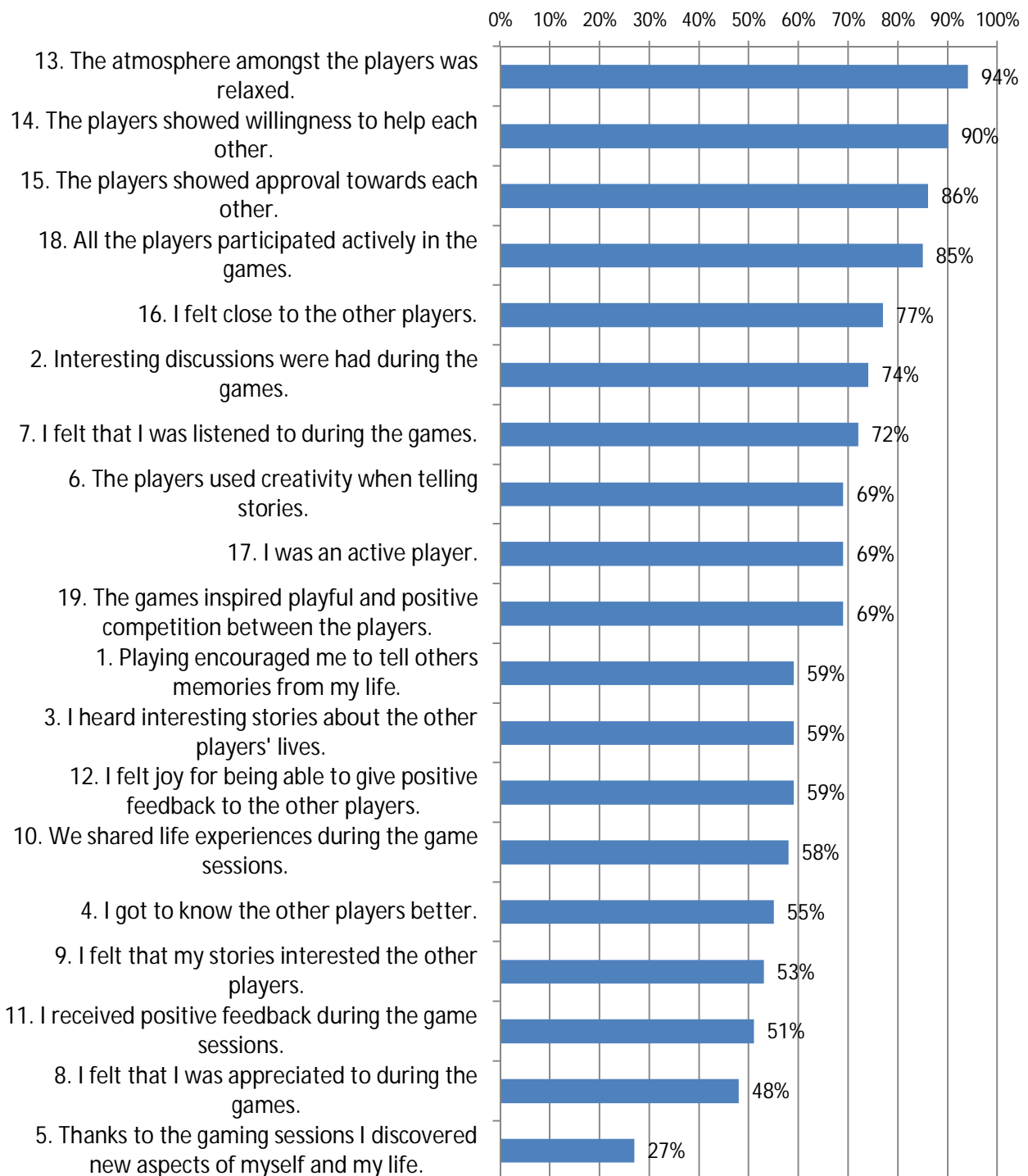


Figure 2.

Feedback on the interaction during the game sessions (Final field trials, Oct.—Nov. 2012).

Older test players perceived the interaction during the gaming sessions more positive than the younger test players (younger than 50 years, including grandchildren). Half of the test players had played the games only once or twice, and the other half three times or more. Those test persons who had been involved in three or more gaming sessions gave more positive evaluations on the interaction during the gaming sessions than those test persons who had played the Storyville games only once or twice. We don't know if they, "the heavy users", liked the games more from the very first session or if they learnt to enjoy the games more during the test period.

To be appreciated and approved, to perceive the sense of belonging, to be connected, to be listened to — all these are our basic needs as human beings. Our test results from the E2C project show that it is possible to design games – game flows and game contents – that create contexts for fulfilling the above mentioned basic needs.

### Feedback on the game experience during the game sessions (Final field trials, Oct.—Nov. 2012)

Playing the Storyville games was perceived as fun (83 %) and the gaming experience was perceived as a positive surprise (69 %) by the older test persons. Two thirds of them maintained that it was interesting to get to know the games (67 %). Using the iPad was easy for two thirds of the older test persons (67 %), and the same amount of them (63 %) said that the game flow was easy to follow. The majority of the older test players (65 %) had experienced the joy of success during the game play. Six out of ten older test players thought that playing was interesting throughout the whole gaming session, and the playing was suitably challenging during all the gaming sessions.

Figures 3a and 3b present all the feedback received from the older test persons concerning the game experience.

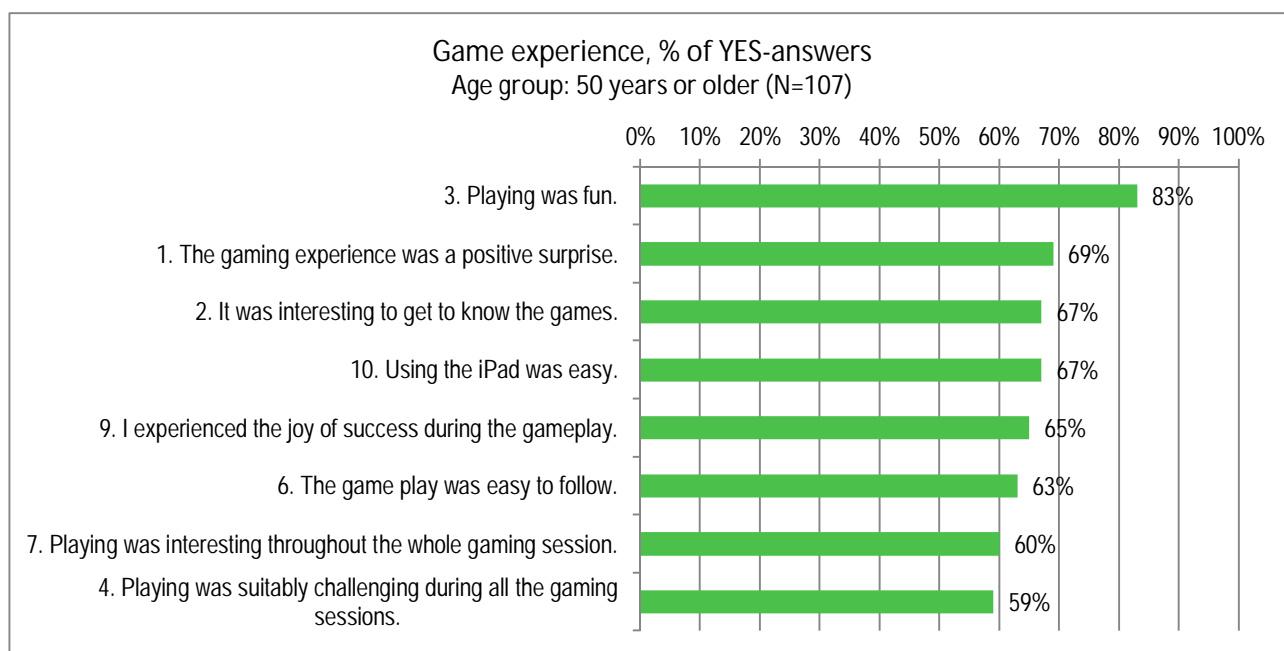


Figure 3a.  
Feedback on the game experience (Final field trials, Oct.—Nov. 2012).

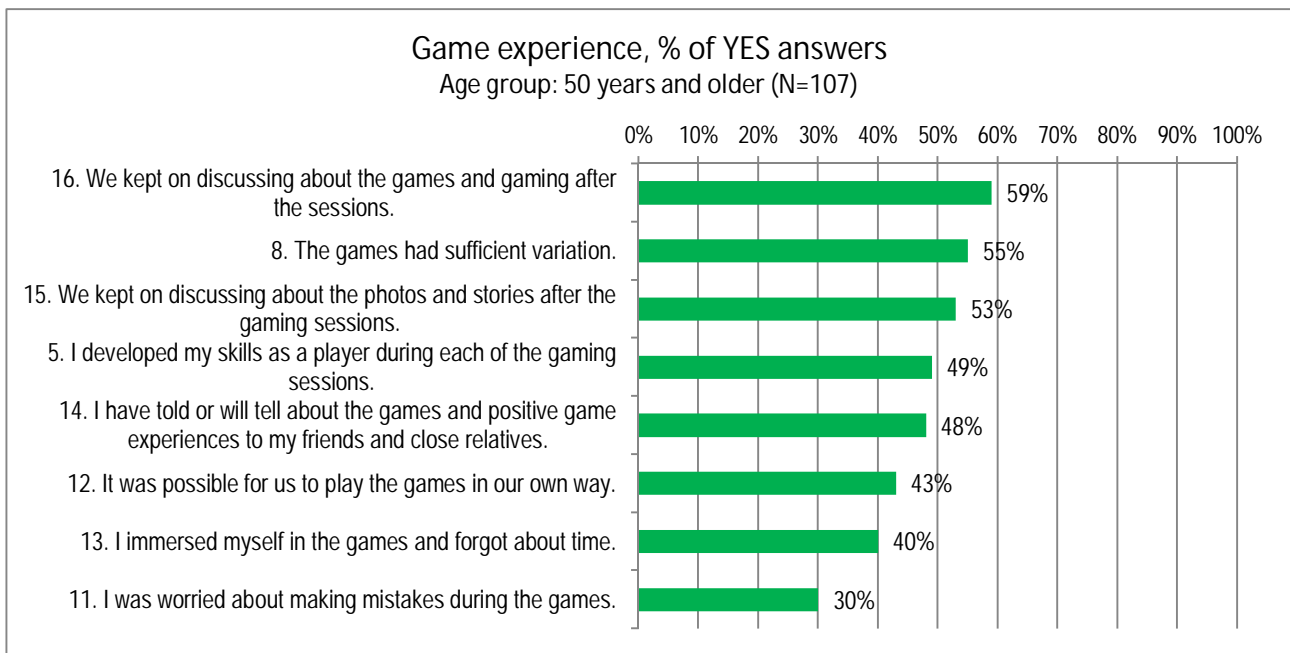


Figure 3b.

Feedback on the game experience (Final field trials, Oct.—Nov. 2012).

It is interesting that six out of ten older test players kept on discussing about the games and gaming after the sessions. It has been argued that in our Nordic societies gaming may be considered as something not very suitable or not a proper subject of discussion especially among the aged. Gaming is for pleasure!

One of the basic ideas behind the Storyville games is that they trigger storytelling. Therefore it is important that the players return to the stories inspired by or linked with the photos after the gaming sessions. The test period was a short one, lasting only for two or three weeks, and thus it is understandable that every test player didn't even have a chance to go on discussing about the photos and stories after the gaming session. However, half of the older test persons (53 %) said that they had kept on discussing about the photos and stories after the gaming session.

### Anticipated long-term impacts (Final field trials, Oct.—Nov. 2012)

In the final field trial we followed the same procedure with impact evaluation as in the previous tests. The participants were asked to imagine that they had played the games for months, even for a year. There were 15 items in the scale. The total number of valid answers per item is 81–85. All the respondents were 50 years or older.

At least six out of ten older test players agreed with the following items:

- I am at peace with myself and with the current state of my life. (77 % agreed)
- I feel that I am of importance to somebody. (65 %)
- The feeling of closeness to people important to me has grown stronger. (61 %)
- A sense of belonging has grown stronger between me and my friends/peers. (61 %)

When the gaming sessions create opportunities for high quality encounters between family members, next of kin, friends, acquaintances, neighbours, and peers at the meetings of senior associations the social connectedness of the players will be strengthened and thus the risk of falling into loneliness will be diminished significantly. When interpreting the answers given to the questions concerning the anticipated impacts we have to keep in mind the shortness of the testing period.

Out of 15 items 11 pass the threshold of 50 % of YES-answers. Figure 4 presents the percentages of Yes-answers to all the items.

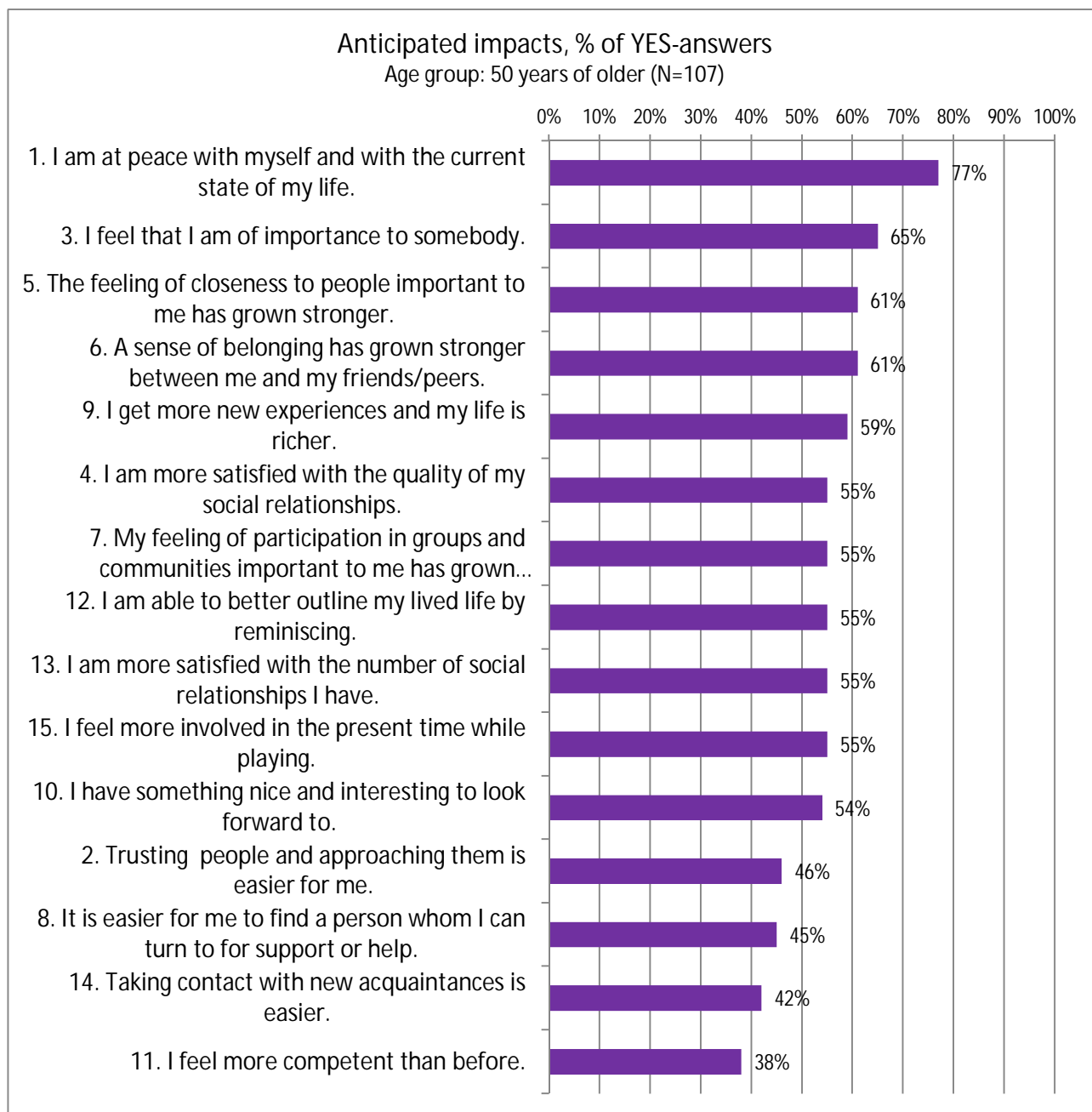


Figure 4.  
The anticipated impacts of Storyville gaming on an older person's life (Final field trials, Oct.—Nov. 2012).

Is the threshold level set at 50 % Yes-answers high enough? We argue that it is a very good start. According to our basic presumption the gaming has to go on for a longer period of time to gain positive changes in the perceived social connectedness. In the questionnaire we ask the respondents to use their imagination when thinking about the situation where they have played the games for several months or even for years: "Using your imagination is permissible and even desirable!". Naturally the field test results on the anticipated impacts would have been more reliable if the test had been going on for three months instead of three weeks.

### Willingness to keep on playing (Final field trials, Oct.—Nov. 2012)

Half of the older test players (56 %) were willing to play games like these also in the future. Every third of them (33 %) was willing to organise new gaming sessions, and 41 % was willing to invite new players. (See Figure 5.) Those test players who had opportunities to play the games three or more times were more willing to keep on playing than others.

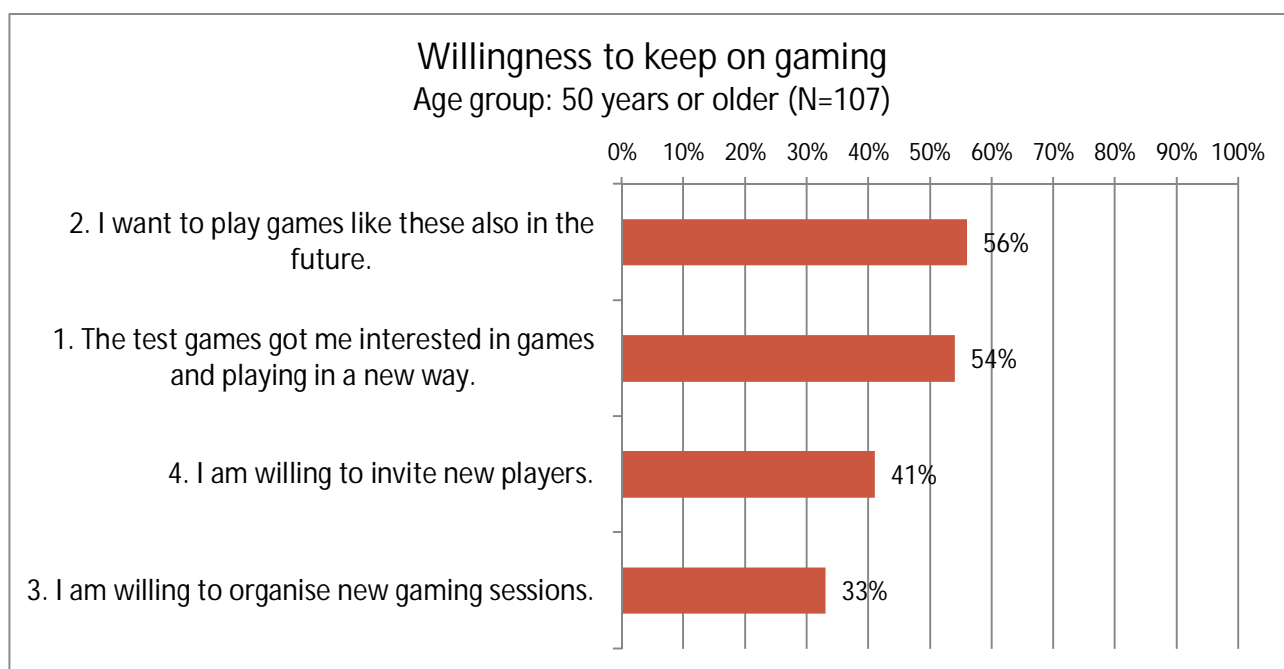


Figure 5.

Willingness to keep on gaming (Final field trials, Oct.—Nov. 2012).

### Conclusion in a nutshell (Final field trials, Oct.—Nov. 2012)

The final field test results show that the prerequisites for gaining the desired outcomes of Storyville gaming, positive interaction and game experience, are met. Based on the results on the anticipated impacts, we expect at least half of the older adults who start playing and continue playing to gain positive impacts on their social connectedness, and enhance wellbeing in the long run.

## 6 Impact assessment based on the Portraits

### The E2C Portraits

The Personas created and described by Copenhagen Living Lab in the context of the first work package focusing on gathering insights on the focal phenomenon, social connectedness, were the starting point for our work on developing a new approach for estimating the cost-efficiency of a new service to be launched on the market in the near future. The Personas – later called as Portraits – were based on the life stories of the participants in the ethnographic study conducted in the spring 2010. Thus the six Personas were “researcher-made” combinations of the lived lives of the interviewed persons in Denmark, Finland, the Netherlands, and Sweden.

We chose three Portraits out of six, and started writing scenarios for the persons described in the Portrait. We chose the following Portraits:

- *Kauko, The Family Amateur*, perceives his family relations unsatisfying. He had thought that after his retirement he would spend more time with his children and grandchildren from his previous marriage. His expectations have not been fulfilled, and the old feelings of not being really close to the children are showing more and more. It troubles him in his everyday-life but he does not know what to do about it. Kauko feels like there is an empty space in his life.
- *Trudie, The Globetrotter*, lost his husband two years ago and her children are living far away. Trudie has a large network of social relationships but no close friends. The friends she used to meet up with her husband are still the closest ones. Trudie has diabetes type 2, and she perceives that the illness restricts her life, and prevents her from meeting her acquaintances over lunches or at cafés. It is difficult for Trudie to talk about the loss of her husband and her own illness. The last thing she wants is her friends to start feeling sorry for her, but sometimes she wonders about what she would do if the illness got worse – especially because her family lives so far away.
- *Kirsten, The Professional Human Being*, retired seven years ago at the age of 62. Her husband was 10 years older than she but they were expecting to have many active and happy years of retirement together in their renovated house with a nice garden. However, Kirsten’s husband took ill, and he passed away nine months ago. After her husband got seriously ill Kirsten realized that some of her friends wanted to take a distance to her. She was and still is saddened by some of the people that she had considered as close friends no longer came to visit her and her husband. Kirsten has two daughters and three grandchildren. She thinks it is important that her children can live their own lives without her interfering.

The original texts describing Kauko, Trudie, and Kirsten were shortened to focus on the gradual changes in the social networks of the persons, and their perceptions of connectedness.

### Scenarios

We decided to write scenarios for a period of a year. Longer periods of time were also considered but the decision was made to limit the time span. Our main reason for selecting a

rather short time span for the scenarios was credibility. As we were dealing with the anticipated impacts of the use of an innovation instead of verified impacts, we didn't want to increase the uncertainty of the future paths in the lives of the Portraits by reaching out further into the future.

Two kinds of scenarios were written. The first ones describe the lives of the Portraits when the risks of falling into loneliness come true. All the original Portraits included descriptions of the smaller and bigger risks for feeling oneself disconnected or isolated due to changes in life (like retirement, one's own illness, or the serious illness or death of the spouse). Within a year nothing extraordinary will happen in the lives of the Portraits but once the risks of weakening of the bonds between family members, next-of-kin, or friends, are there, and start coming true, the accumulating chain of negative impacts on the quality of life of the Portrait person easily erodes all the chances for changing the nature of one's future path.

When writing the scenarios describing the paths towards loneliness, we relied on the substantial body of literature highlighting the impacts of loneliness on one's physiological, psychological, and social wellbeing. The impacts and the studies they are based on have been reported in the document titled The E2C Impact Model.

The second scenarios describe the lives of the Portraits when the Storyville gaming sessions work as a trigger for strengthening connectedness.

All the scenarios have been written as if they were based on the transcription of the internal speech of each Portrait. Both loneliness and connectedness are the perceptions and feelings of individuals, and thus, the evaluations on the degree of loneliness or connectedness have to be based on subjective measures. Our aim was to describe Kauko's, Trudie's, and Kirsten's own experiences and thoughts and to show glimpses of the process leading either to loneliness with its detrimental effects on wellbeing or to strengthened perceptions of connectedness and improved quality of life. When trying to enter into the feelings and worlds of thought of the Portraits we leaned on the results of qualitative studies conducted among older adults. Therefore the scenarios are not the result of the imagination of the authors but they are grounded upon the experiences of the interviewed persons reported in the extant literature.

## Identifying the potential chains of effects in the lives of the Portraits

We presented the E2C Impact Model, the descriptions of the three Portraits, and the scenarios to ten Finnish and four Danish experts in elderly care and wellbeing of older adults. In the meetings with the experts we gathered feedback on the E2C Impact Model, and identified several potential chains of effects in the lives of the Portraits.

In Finland we focused on the more positive scenarios, and tried to identify the positive impacts of Storyville gaming and thus strengthened connectedness on the lives of the Portraits within a time frame of one year. An example of the chain of positive effects can be found in Appendix 1

In Denmark, the participants of the expert focus group decided to focus on the more negative scenarios. They mainly identified the chains of deteriorating effects leading to increased anxiety, loneliness and worsening of illnesses. An example of the chain of negative effects of perceptions of disconnectedness can be found in Appendix 2.



## 7 Cost-efficiency analyses based on the Portraits

Prevention of loneliness is extremely valuable, also in monetary terms, from the individual's and his or her close ones' and from the society's point of view. When we succeed in preventing loneliness it is very probable that the overall wellbeing of the person remains better, and there is no need for visiting doctors and other health care professionals, or taking medication. On the other hand, if our endeavours at avoiding the risks of falling into loneliness will fail, the costs related to health care will most probably rise.

One of our tasks included in the evaluation of the impacts of the Storyville gaming was to analyse the cost-efficiency of the new service, that is the games to be played on an iPad together with family members, next of kin, and friends. The task was extremely challenging as the games had not been launched on the market. We decided to work with the Portraits, and the chains of effects identified in the discussions with the experts.

For each Portrait we chose one chain of negative effects, and one chain of positive effects. These two chains were kind of mini scenarios, or opposite sides of one coin. We started putting the price tags on the chain of negative effects. The following tables present the costs of negative effects for each one of the Portraits and for the public sector.

Table 4.

The costs of the chain of negative effects for Kauko, The Family Amateur, and for the public sector.

	Costs for the individual and his family	Costs for the public sector
Visiting a doctor at the local health centre twice a year.	13,80 €/visit -> 27,60 €	142 €/ visit -> 284,00 €
Doctor refers to a physiotherapist. Five visits a year.	7,50 €/visit -> 37,50 €	70 €/visit -> 350,00 €
Medication: Extended use of pain killers: 352 tablets in a year.	84,00 €	0,00 €
Stomach-protective drug (needed for painkillers): 352 tablets in a year	42,00 €	17,60 €
Wife's consultation with the couple therapist.	100,00 €	0,00 €
TOTAL	291,10 €	651,60 €

Table 5.

The costs of the chain of negative effects for Kirsten, The Professional Human Being, and for the public sector.

	Costs for the individual and her family	Costs for the public sector
Visiting doctor in local health center twice a year, including EKG, labs.	13,80 € x 2 -> 27,60 €	242 € x 2 -> 484,00 €
Visiting emergency unit at night time because of the flu (instead of day time visit to health center)	27,50 €	295,00 €
Her daughter's family has to hire a babysitter 15 times 4 hours/ year (Kirsten used to babysit)	8,20 € x 60 h -> 492,00 € Tax reduction 45% -> 271,00 €	221,00 €
Safety services	361,00 €	0,00 €
TOTAL	687,10 €	1.000,00 €

The costs mentioned in the tables above (Kauko and Kirsten) are based on Finnish sources. All the costs have been found either in printed material or in the internet. Reference lists can be provided.

Table 6.

The costs of the chain of negative effects for Trudie, The Globetrotter, and for the public sector.

	Costs for the individual	Costs for the public sector
A three day stay at hospital due to high blood sugar to adjust the level of medicine (nutrition therapist's consultation and lab tests included)	Transportation costs	2.950,00 €
How to cope with diabetes -course at the local healthcare centre	Transportation costs	147,00 €
Medicine (when the costs exceed 490 €, society covers the rest of the costs)	490,00 €	314,00 €
Multiple dose injection (MDI) therapy (follow up, care devices, insulin), further training on self-care activities	Transportation costs	3.400,00 €
Psychotherapy 10 times in a year	10 x 107 € = 1.070,00 € + transportation costs	0,00 €
TOTAL	1.560,00 € + transportation costs	12.858,00 €

The costs mentioned in the above table are based on Danish sources.

When we manage to avoid the risks of falling into loneliness, the costs presented in the above three tables, will not come true. When assessing the cost-efficiency of the new service from the individual's point of view, the costs avoided can be regarded as "savings".

To be able to calculate the net effect of the new service we have to assess the costs of the usage. In this case Kauko, Kirsten and Trudie have to buy an iPad if they don't already own one, and they have to download the games from the iTunes Store. In addition to buying the game board and the games, some money has to be spent on organising the gaming sessions.

Table 7.

The net effect for Kauko

"Savings" (see table 4)	+ 291,00 €
Three games (iTunes Store)	—5,00 €
Refreshments during the visits of grandchildren (gaming sessions)	—125,00 €
Refreshments during the football matches	—125,00 €
Increase in travel expenses	—100,00 €
Subscription to a football magazine for grandchildren	—62,00 €
The net effect	—126,00 €

The table above tells us that for Kauko it will be more expensive to live an active life with his grandchildren than to stay at home, more or less isolated. This is the case when the time span is limited to one year. The price for an iPad, 450 €, is missing in the table. The total net effect with an iPad will be around 575 €. However, when we calculate the net effect for the public sector, it is easy to assess that it is at least + 651,60 €. Thus, it could be in the interest of the public sector to buy iPads, for example to be borrowed from the libraries, by Kauko or his wife.

Table 8.

The net effect for Kirsten

"Savings" (see table 5)	+687,10 €
Three games (iTunes Store)	—5,00 €
Refreshments during the visits of neighbouring ladies (gaming sessions)	—150,00 €
New table cloth, new coffee cups, and other tableware	—175,00 €
The net effect	+357,10 €

The calculation above shows that the net effect for Kirsten is positive in monetary terms, too, if the price of an iPad is not included in the calculation. When the price of an iPad is included, the net effect will be negative, around one hundred euros. When we compare the price of an iPad (450 €) to the costs for the public sector (at least 1000 €) in the table 5, the municipal decision makers would make wise decisions if they'd decide to invest in organising

preventive activities like gaming sessions or include tablets and games in the selection of the local library.

Table 9.

The net effect for Trudie

“Savings” (see table 6)	+1.560,00 €
Three games (iTunes Store)	—5,00 €
Refreshments during the visits of old friends (gaming sessions)	—150,00 €
Lunches with girl friends at the restaurants	—200,00 €
The net effect	+1.205,00 €

The costs of the chain of negative effects for Trudie are 1.560 euros, and in her case the costs for the public sector are 12.858 euros (see table 6). The net effect for Trudie will be positive even when the price of an iPad is included in the calculation.

## 8 Lessons learnt

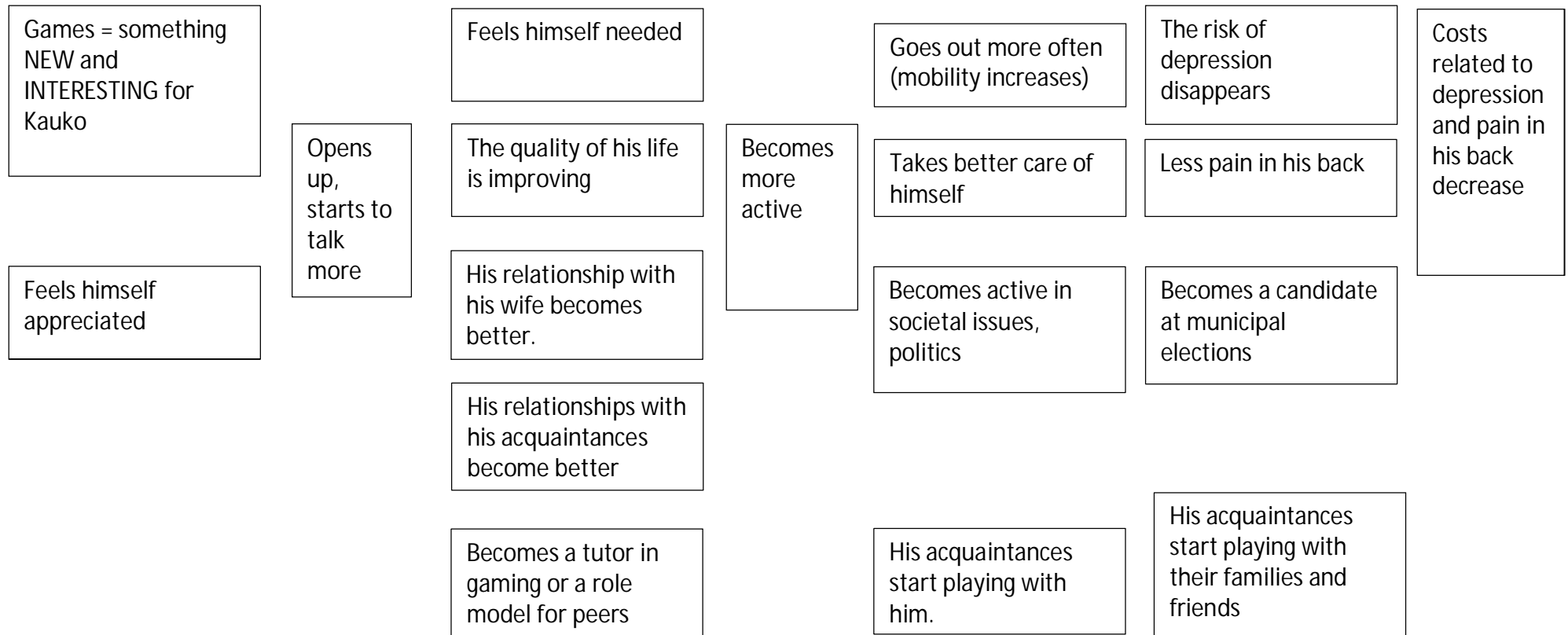
Assessing the impacts of an innovation during the development process is indeed a mission impossible. However, in the Express to Connect project we have learnt that assessing the anticipated impacts of an innovation during its development process is a mission possible.

The solution lies in the user-centric approach. The evaluation of the anticipated impacts of an innovation has to be based on the desired outcomes the users themselves have defined. In the case of E2C project a new questionnaire was designed to be used in the evaluation. Most of the items in the questionnaire are based on the results of the ethnographic study conducted in the beginning of the project. We learnt that the well-known and widely used scales on the quality of life or wellbeing or social connectedness or social networks are too generic when the focus is on the anticipated impacts on connectedness of older adults.

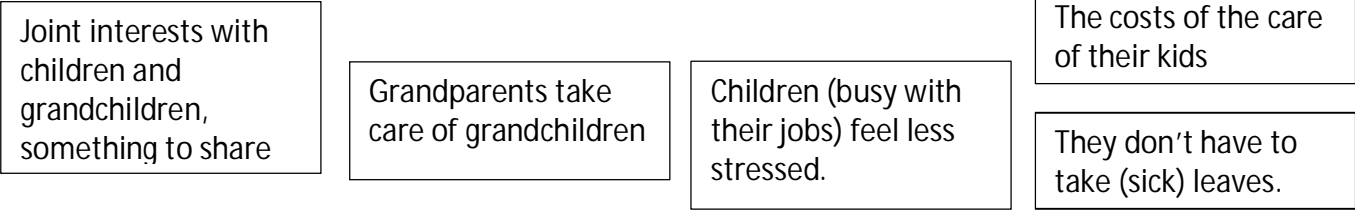
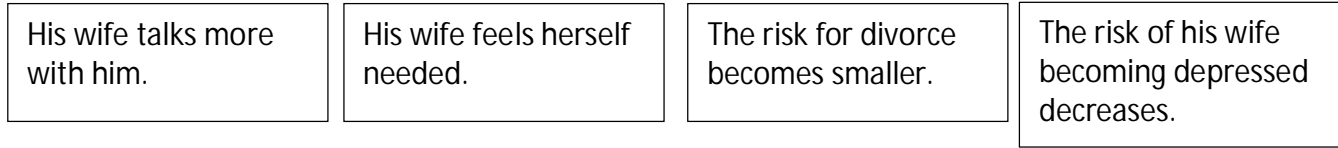
Additionally we learnt that a new impact model of social connectedness of older adults was needed. Based on the results of the ethnographic study we realized that there are certain age-specific features of the social connectedness of older adults and its impacts on their physiological, social, and psychological wellbeing. In the E2C Impact Model the inputs and interventions are project specific (games on an iPad, gaming sessions) but according to the feedback received from various experts the outcomes and long-term impacts on wellbeing described in the model could be the same when assessing the impacts of other interventions aimed at strengthening the connectedness of older adults.

The idea of utilising Portraits as the basis for the assessment of the anticipated impacts in monetary terms is a new one. It is promising but more work has to be done to develop the approach further. Especially it will be very interesting to try to find out ways and procedures how to scale up the net effects from the level of one Portrait to the level of a larger population.

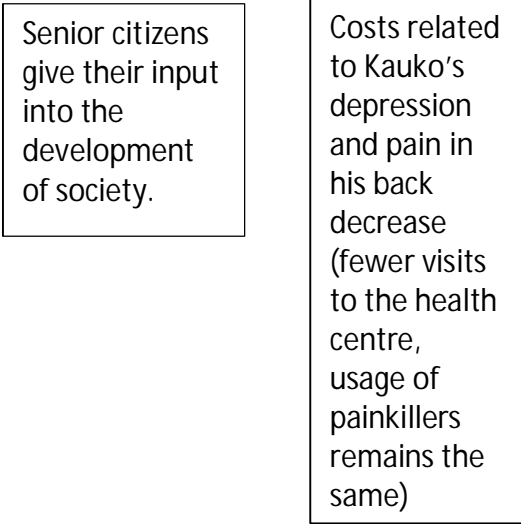
## Appendix 1.Chains of positive effects of connectedness for Kauko



Beneficial impacts for Kauko's family members, close ones



Beneficial impacts for the public sector & society



## Appendix 2. Chains of negative effects of disconnectedness for Kirsten

