



Enabling Technologies for People with Dementia

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Report of

Picture Gramophone assessment: National findings from Finland, Ireland, Norway and UK and cross national results

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1. Introduction

One of the challenges in caring for people with dementia is organising stimulating activities. Zgola (1987) argues that the most successful programmes, both in adult daycare and in residential care, have found activities that replace tasks that have been lost, support positive roles and make success possible. A stimulating environment can help people with dementia by diverting attention from loss and illness and supporting other roles they may have besides the role of the patient.

According to a critical review of Marshall and Hutchinson (2001) wellbeing and life satisfaction have increased among people with dementia who participate in different activities. Studies have also shown that participation has decreased challenging behaviour and confusion, improved and supported communication, improved quality of life, provided a way to express feelings, improved self-esteem and self-respect (Marshall & Hutchinson, 2001). Some anecdotal case studies have shown that people with dementia have been able to maintain their skills longer if they participate in meaningful activities in a safe environment (for example Aldridge, 1995).

In a review on the use of music in everyday dementia care, Brown, Götell and Ekman (2001) concluded that among people with dementia the use of music in different ways can improve their quality of life. The use of background music has been found to decrease aggressive and agitated behaviour (Cohen-Mansfield & Werner, 1997; Casby & Holm, 1994; Gerdner & Swanson, 1993; Goddaer & Abraham, 1994), increase food intake during meals (Ragneskog, Kihlgren, Karlsson & Norberg, 1996), increase bath cooperation (Thomas et al., 1997), increase cognitive capabilities and improve social interaction (Lord & Garner, 1993). There are also studies showing the positive effects of singing on the social behaviour and cognitive skills of people with mild to moderate dementia (Aldridge, 1995; Brown et al. 2001).

In a study by Ashida (2000), it was shown that participation in small group reminiscence-focused music therapy groups might help to reduce depressive symptoms in elderly people with dementia. Kumar, Tims and Cuess et al. 1999 have reported that participation in music therapy increase serum melatonin levels in patients with Alzheimer's disease and this may contribute to relaxed and calm mood. Two studies have described persons with severe dementia who were resistant towards dressing, washing and other daily activities. Singing old popular songs or playing their preferred music while helping them solved the problem of resistance encouraged them to be more interactive and put them in a much better mood. (Brown et al., 2001; Clark, Lipe & Bilbrey, 1998). According to review by Brotons (2000) there are multiple references that report people with dementia continue to sing old songs and to dance old tunes. She concluded that music may be a channel for reminiscing and life review.

The aim of this report is

1. to describe a multimedia program developed for use by people with dementia and their carers
2. to describe how the program was evaluated
3. to describe what findings were made during the first three months of use in Finland, England, Ireland and Norway
4. to summarise the national results in a cross country analyses

The development of the program has been partly funded by the Finnish Academy Research Programme on Ageing. Part of the programme's development and the assessment study were funded by the European Union as a part of the ENABLE project.

2. The 'Picture Gramophone' multimedia program and the Editor for making individual Picture Gramophones

The 'Picture gramophone' (PG) multimedia program was developed in Finland in the 1990s by Outi Mäki. It was designed to be used by people with dementia, to stimulate them and give pleasure to them. The program was evaluated in a dementia care unit and the findings were positive, but they suggested that more flexibility towards the individual needs of users is needed. (Mäki & Topo, 2002) Because of this finding and because of the development of multimedia tools, the original PG was further developed by Mäki. A new part called 'Editor' was added to the original program to make it easier to develop individual PGs. The aim of 'Editor' was that it should be fairly simple to use and that people with little experience of word processing and the use of Windows could use it with a manual. The Editor program is planned to be used by people other than those with dementia, but the context of each PG should ideally be based on the preferences of individual users. When the Editor program is used, a PC keyboard and a mouse are needed but when the Player of the PG program is used, only a touch screen and the PC itself is used. The PC needs to have a CD-ROM drive for playing music on CD.

When a new Picture Gramophone is made the Editor is used. With the Editor one can make new Picture Gramophone programs for people with dementia by using their favourite music and own photos or photos from the storage of the program. The Editor program makes a new Picture Gramophone ready and portable. When programming of new Picture Gramophone is started one music CD is needed. All the songs needed in one Picture Gramophone have to be in that CD: it can also be a collection of copied music from different sources but finally everything needs to be in separate music CD for each individual Picture Gramophones. The Editor includes three tools: a songbook for saving the written lyrics, a timer for making the lyrics to follow the played music and the photo storage where new photos can be saved for further use. The user writes the lyrics as a Word document? and uses the timer when adding the parts of lyrics needed in one screen shown for the user with dementia in a ready Picture Gramophone. The photographs, paintings or drawings are used to illustrate either the artists or names or themes of the songs. They are added to the ready made selection of the songs. The final individual Picture Gramophone product includes three screens: first one showing that the Player is in use, the second one showing the first selection which could be for example selection of five artists, the third one is showing the selection of songs of the artist chosen in the second screen. After chosen the song one the fourth screen will start showing the lyrics.

The edited PGs are similar to karaoke. When PGs are used, the user or users can select from a list of artists or groups of, two to six themes or types of music they would like to listen to. Then they can choose the song they prefer from a list of two to six. Text and pictures or photographs supporting the user appear on the screen. For example, the user sees the names of the songs and photographs associated with them. When the song begins to play, the lyrics are seen on the screen and they are timed to scroll according to the music. At the end of the song

the same list of songs is shown again and there is also a button with the text 'another song'. The PGs are played by the Player program.

In the ENABLE project, we assessed both the Editor program and the use of ready-made PGs and in the first part of results we focus on the Editor and in the second part on the ready made Picture Gramophones and the use of the Player. We will first report national findings and then summarise them in a part describing cross-national results.

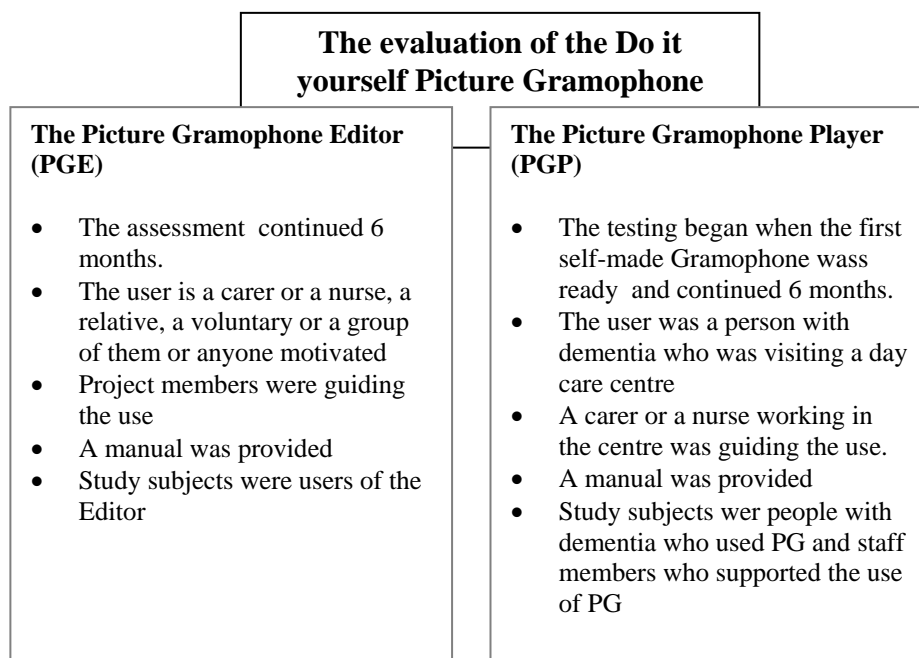
3. Design of the assessment studies in four countries: procedure and data collection

The assessment of the Do it yourself Picture Gramophone consists of two separate tasks:

- 1) assessment of the use of the Editor for making individual Picture Gramophones
- 2) assessment of the use of the individual Picture Gramophones and the use of Player for playing the ready made Picture Gramophones.

The design of the assessment study is described below in Figure 1.

Figure 1. Design of the assessment study



We formulated some criteria to help in answering the questions whether the results show success or failure:

The Editor for Picture Gramophones is working well enough if

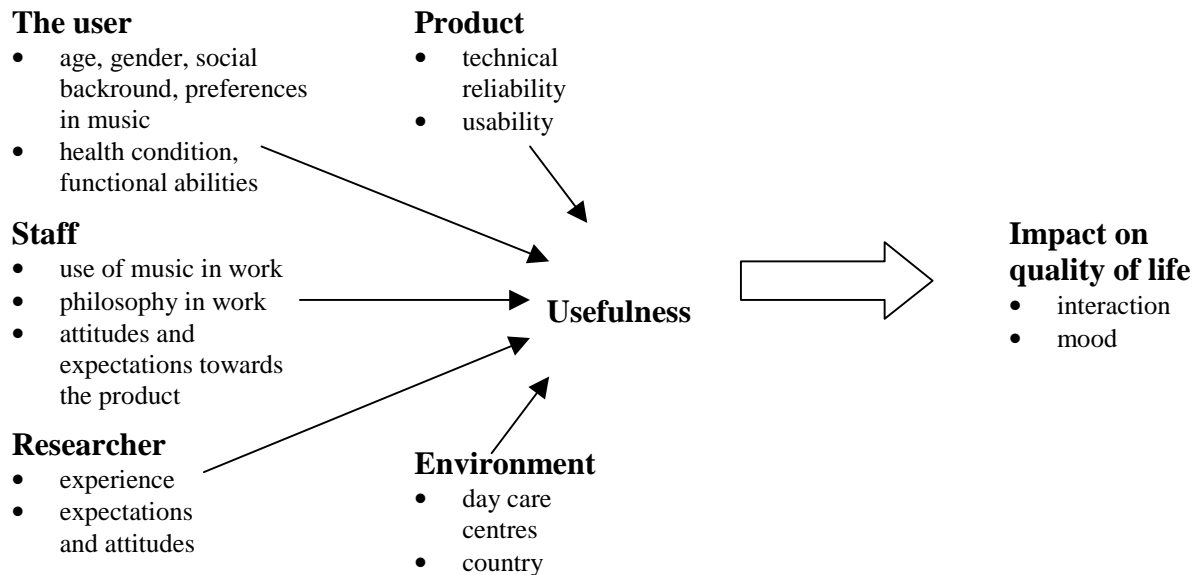
1. the user can build her/his first PG without stress and big problems,
2. the user is motivated to build a second PG, and
3. the created PG is useful in carer's work.

The ready-made Picture Gramophones and the Player for playing them are working well enough if

1. people with dementia can use it when they receive guiding as much as their carers/nurses think is appropriate
2. people with dementia get on well with the program and want to use it repeatedly and there can not be seen any negative impacts of the using.

The design of the data collection aims at getting information about these aspects but also following the ENABLE framework for the assessment studies. The framework presented in Reports 4.1.1.-4.5.1 is applied here in the following way (Figure 2)

Figure 2. Possible factors influencing use and usefulness of the Editor and PG



One dementia care unit in England, Norway and Ireland and two units in Finland were involved in the assessment of the Editor and the ready-made PG programs. The Editor assessment was carried out in a period of starting before the Editor had been used and ending three months since the first Picture Gramophone was built up. Assessment of the ready made PGs and the use of the Player was carried out over a six-month period.

The aim of the Editor assessment was to find out whether the use of the Editor was easy enough to be used by any one with some computer skills, how much time was needed to built up the individualised Picture Gramophones and finally were the users of the Editor satisfied with the the ready made Picture Gramophones and willing to continue the use of the Editor.

The aim of the assessment of the ready made PGs and the Player was to find out whether the program(s) was used, whether the users benefited from its use and how the program could be further developed. One general aim was to find possible associations between PG use and the wellbeing of the participants. Our hypothesis was that the using PG can support the wellbeing of a person with dementia by supporting independence or feelings of competency, by improving mood, stimulating reminiscence, by increasing sociability, and by decreasing anxiety and wandering, and finally by enhancing self-esteem. The main focus of the assessment was the actual use of PG and the outcome measures were closely connected to this. Less emphasis was put on possible impacts after or between the sessions.

Daycare units were selected for the assessment environment for several reasons. One stipulation for the PG assessment was access to a PC with a touch screen and a DC-ROM drive. Such PCs are relatively expensive and more people can use the same computer in a daycare centre. Secondly, daycare units support the continuity of home care and because the main aim of the ENABLE project is to find solutions which could support living at home, they were found to fit in well with the aim of the project. Thirdly, the idea of the Editor program is that it will provide a new tool for dementia care, so that staff of daycare units were expected to be sufficiently motivated to participate in the study. One assessment study on PG is being carried out a private home in Finland, and the results are described here as a case story.

The centres were asked to use the PG in the way they found most suitable for the activities in their centre as a whole. In Ireland, sessions with one person and a carer were organised, in Norway and in Finland PG was used in group sessions. The centres were also asked to offer frequent opportunities for PG use, but they were asked not to keep the PG open or accessible all the time. The idea was to give the centres flexibility and encourage them to use person-centred care rather than giving a detailed protocol and timetable for them to follow. The one family that assessed the PG at home was also asked to keep the PG frequently available but not to keep it open all the time.

3.1 Recruitment and the study subjects

The aim was to recruit the users of the Editor program in the day care centres. The staff members interest was first asked and if they were not willing to use the Editor then other participants were tried to get involved in and if this did not succeed then the national project teams took the responsibility in using the Editor.

The staff of the daycare units were asked to select at least four clients who could participate in the assessment of ready made Picture Gramophones and the Player. The inclusion criteria were that sight and hearing were good enough to hear the music and read the lyrics on the screen. Informed consent was requested from the participants and in cases where they were not able to give consent due the severity of their dementia it was requested from their families or persons taking the principal responsibility for informal care. A brief information letter was distributed to the participants and their families about the ENABLE project.

3.2 Data collection methods and study design

3.2.1 The Editor

The first data collection point (T0) was before the Editor was used for those who were planning to use it. It included background questions (age, gender, occupation, years worked in dementia care, years been involved in developing activities in the day care centre, previous experience in using computers, Windows and word processing, willingness to use the Editor and expectations about learning to use it). When the first Picture gramophone was ready the (T1) user of the Editor was asked about difficulties in use of the Editor and how they were solved, hours spent in making the first Picture gramophone ready, where the pictures and the music was found and how the priorities of music of the Picture Gramophone users were

investigated. The respondents were asked to assess the Picture Gramophone they had made and the Editor software and guidance they had received in a Likert scale (from +2 to -2) and finally about their willingness to create new picture gramophones. After three months since the first Picture gramophone was made ready (T2) the users were asked about how often the Editor was used, how many Picture gramophones were created, how laborious different tasks in making the new Picture Gramophone were, was the result worth the effort, and how the users felt about using the Editor and whether the use of the Editor had had any impact on communication with the users of the Picture gramophones and/or their relatives. They were also asked about how the Editor can be improved.

3.2.2 The Player and the Picture Gramophones

The data collection of the Player and the individual Picture Gramophones is described in Figure 3. Before the assessment was started staff members and clients were asked to fill in a questionnaire on participants' age, gender, living circumstances, previous occupation, hobbies, marital status, family relations and frequency of contacts with family members, friends and relatives. Information about functional ability was also requested to enable us to understand any physical or sensomotoric restrictions they might have in using PG. The questions used were part of the 15 D health-related quality of life questionnaire (Arinen, Häkkinen, Klaukka, Klavus, Lehtonen & Aro, 1998). Information on use of prescribed medication for pain relief, anxiety and depression was requested to determine whether severe pains or mental health problems might affect a person's ability to concentrate. PG is based on music, so preferences associated with music were asked for in an open-ended question. The MMSE test score was requested to determine the severity of the dementia and data was gathered on possible dementia diagnosis.

Before the assessment was started a staff member was asked to describe the participants' involvement in activities at centre by choosing one of five alternatives (involved in most activities, in half the activities, in some activities, in few activities, not at all). In addition, a description of participants' social interaction while at the centre was requested by choosing one of the following alternatives: social interaction with several people on own initiative, social interaction with some people on own initiative, usually answers or reacts when spoken to, and hardly any social interaction with other people. The last question was about main care difficulties in the daycare centre from the staff point of view. A list of 14 was given based on an extensive study on home care of people with dementia (Eloniemi-Sulkava, 2002) and it was modified slightly to fit better in the English, Norwegian and Irish contexts. It included disorientation, getting lost, restlessness (continuous moving, walking about), repeating the same questions, hiding things or packing, hallucinations, stubbornness, depression, socially inappropriate behaviour, difficulties in daily activities, difficulties in moving, visio-spatial problems, dangerous behaviour toward oneself or other people, dizziness or problems with balance and fretting. Last on the list was 'other, what' and first on the list was 'no problems'.

Before the assessment was started each staff member was asked to give their opinion on whether there were enough staff in the centre to meet the needs of the clients and to describe the philosophy behind the care in their centre. There was a question about activities arranged regularly and another one on the use of music at the centre. Eleven staff members answered the questions.

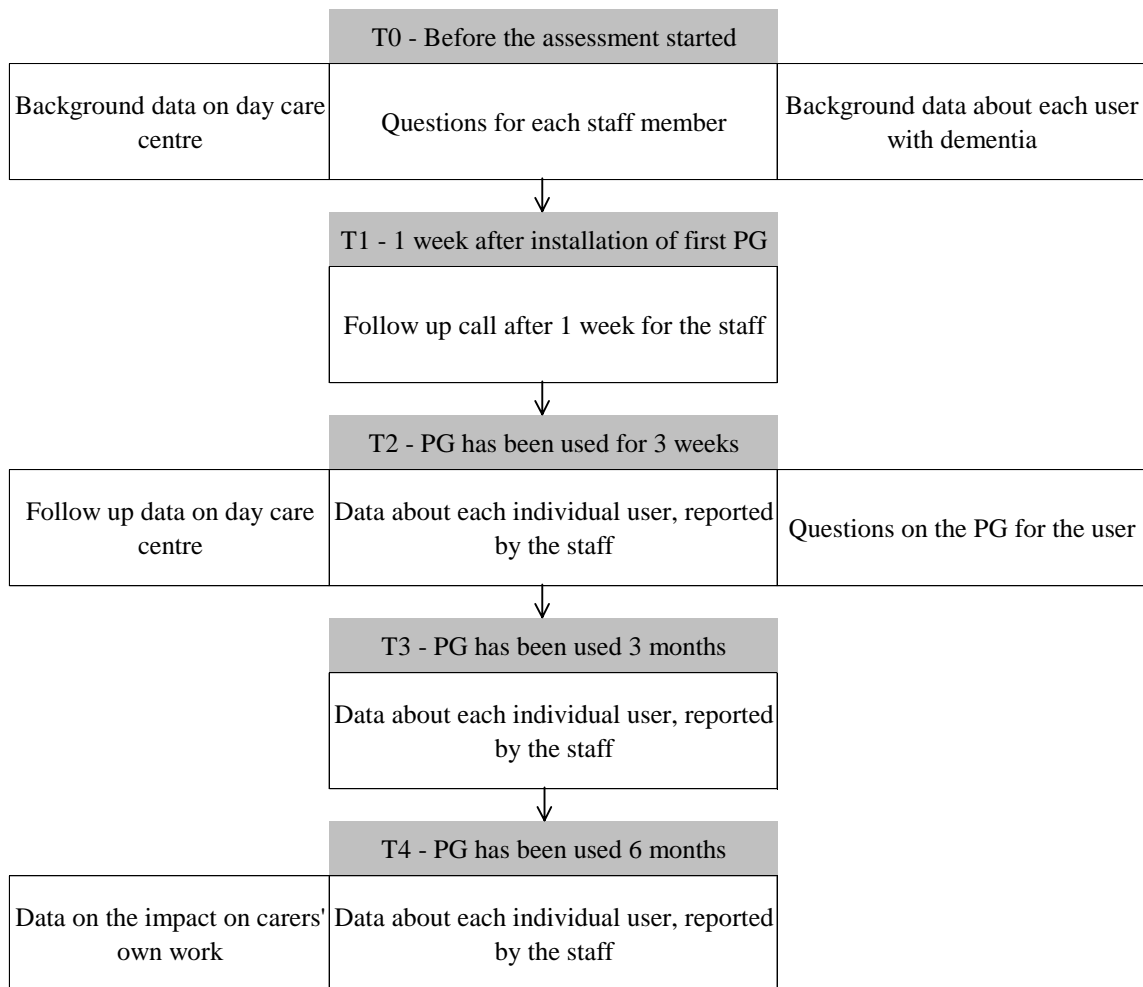
The second data collection point was a week after the first PG had been installed. A phone call was made to the centres to ask if the PG had been used and if there had been any problems.

Two weeks after that all participants and staff members were interviewed and information was gathered on how often the PG had been used. Participants with dementia were interviewed in front of the PC with the PG they had used open on the screen and music playing. They were asked how they felt about the music and about the device and whether the program was easy to use or difficult to use and if so, why. Notes were also made on their other comments. The staff were asked about each participant: how often the person had visited the centre during the last three weeks and how often she/he had used the PG and while using it had sung along and on average how many minutes s/he had sat by the PC at anyone time. The staff were also asked whether the subject had any problems with PG use and whether s/he had experienced any benefits from PG use. Staff members were also asked to assess the impact of PG use on each participant's mood and social interaction by choosing one of the following alternatives: very positive, positive, no impact, negative, very negative. The same the activities at the centre as at T0.

Three months after the first PG had been installed (T3) the staff were asked to answer three questions on each of the participants. The first question was the same as at T0 about the main difficulties involved in the care of the person in daycare. The second question was about whether there had been any positive outcomes of the use of PG for the user and the third about negative outcomes. The last interview (T4) was conducted six months after since the first PG was installed. The same list of care difficulties was presented to the care staff and they were asked to consider whether the use of the PG had had any impact on interaction between the staff and the subject. They were also asked to say whether PG use had had any impact on their own work. Information was collected about the location of the PC during the previous six months.

While the PG was being used, the staff of the daycare centres were asked to make notes about its use in a journal given to them. In addition, progress reports have been written in the different countries during the assessment period. The quantitative data has been analysed by SPSS and the qualitative data has been analysed using content analysis. Fisher exact test has been used for analysing statistical significance.

Figure 3. Data collection process of the Player and the individual Picture Gramophones



4. Assessment study in Finland

4.1. Results of the Editor assessment

Two day care centres were involved in the Editor and PG assessment. The staff was not willing to use the Editor but interested in using the ready made PGs in their day care units.

In Finland six persons answered the questionnaire given before the Editor was started to be used. Three were working in one of the day care centres involved in the assessment, one was a grown up grandchild, one a nurse who had been very much involved in making material for different activities for people with dementia and one was an Enable project worker. Thus, four had long experience in dementia care (from 8 to 14 years) and two had none. Their age varied from 24 to 61 years of age, five women and one man did fill in the questionnaire. Two had no experience of the use of the computer, one was able to use word processing and the rest were experienced computer users. Five were willing to learn about the Editor use and one was not willing. Two expected no difficulties in the use of the Editor, one was expecting some support and manual in Finnish, one said that she has heard that it is easy and aone that she'll see what will happen.

Out of these six respondents two finally made Picture Gramophones. The staff members were helping in finding out about music preferences of the participants with dementia but they did not use the Editor. The grown up grandchild was finishing his studies and he gave up the use of the Editor because of lack of time.

The two respondents were experienced computer users. They both listed some difficulties in the use of the Editor: it was difficult to close the program because you needed to save several times, "cut and paste" did not work every time and the whole program had sometimes collapsed. One of them had needed help in the use and the other one said that she accepted the problems and adapted her working accordingly. One had needed 20 hours in learning to use the Editor but the other one only one hour. They spent from 3 to 5 hours in finding the material for the Picture Gramophone but making the first Picture gramophone took 15 or 30 hours. They had found the pictures from the picture storage which of the Editor or from the Internet. The music was either from a record collection of public libraries, from other people's collections or CD records were bought. They both got information from the staff about the preferences of their clients. One of the respondent found it difficult to assess the Picture gramophone she had made because

"I'm not working in the dementia care".

She also said that it was too time consuming and because that she was not willing to make another Picture Gramophone.

"Especially writing down the lyrics is very time consuming."

The other respondent assessed the Picture Gramophone she had made very high: in the Likert scale including five questions she got 7 points out of maximum of 10 which means that she found the Picture gramophone clear, interesting, useful, easy to use and inspiring. The editor she found very useful in her work but that it was not easy enough to use even if the support has been very useful. She was very willing to make another Picture gramophone: *"Nice thing to do. I got so much involved that I did it at home in free time"*.

Because both these persons did not continue working on the Picture gramophone after T1 no data was collected after that.

Conclusions

No staff member was willing or prepared to use the Editor. Later when it was found out that there were some problems in the Editor program it was found very good that it was used by other persons because so much time was needed in building one ready PG. Based on the Finnish experiences the Editor needs further programming and lyrics of most popular songs should be available in the Songbook of the Editor. That could decrease the time needed for making Picture Gramophones. More work is also needed in making the Editor use simpler by developing the manual and the software of the Editor. The very positive assessment of the ready Picture Gramophone by one of the respondents gives a sign of the potential of the product.

4.2. Player and Picture gramophone(s) assessment in Finland: national findings

Two day care centres were involved in the assessment study. They both mainly had activities which were provided for all or most of the clients. That's why they were willing to use the PGs in the public space and as a group activity. In one centre the PC was located in a corner of one room in the middle of the centre. The room was on a way between living room and dining room and toilets. Thus, there was quite a lot of passing by and this was later found to be little disturbing. In the other centre the PC was placed on a portable desk and it was moved to a cupboard every day after the use. The PC was used in the living room where all the other activities except eating were organised as well.

The centre in Tampere had around ten customs per day and it was open only twice a week six hours per day. There were three staff members. The centre in Helsinki was bigger: it was open during the weekdays between 8 a.m. and 5 p.m. There were two staff members, a cook and the staff was guiding one person who had no training and whose costs were paid by some authorities.

The centres described their philosophy by the following words:

Enjoyable being together, taking everyone's individual needs in accordance, following the ideas of validation. (Tampere)

...Supporting family members by giving a break for them... (Tampere)

Providing homely environment and care and activities which respect individual needs, love for one's neighbour. Support feeling of security. (Helsinki)

Singing, active listening to music and music used in the background and music performances were already organised in both centres and in the centre in Helsinki instruments were also played. List of other activities was long. In Helsinki it included playing games, reading, physical exercise, arts, reminiscence, baking, watching videos, visiting museums and going to picnics. In Tampere it included playing games, reading, physical exercise, reminiscence, maggage and crafts. In Tampere all the staff members agreed that there is enough staff in the centre to meet the needs of the customs but in Helsinki they felt that there is not enough staff.

Before the Editor use was started the staff members of the dementia day centres filled in a questionnaire on their expectations concerning the use of the Picture Gramophones. In Finland six persons filled in the questionnaire and below their response on the ready made alternatives is shown in Table 1. Everyone listed at least five expectations.

Table 1. Staff members expectations on the use of the Picture gramophones in the beginning of the trial, N=6

Expectations	Yes (n)
Support independence	1
Stimulate communication and conversation	3
Stimulate reminiscence	5
Increase mood	6
Turns attention away from incompetence, illnesses and loses to something interesting	3
Decrease anxiety	3
Decrease critical reactions to others	1
Increase interest towards other people and environment	0
Support feeling of competence	2
Decrease need for sleeping pills	0
Decrease need for mood affecting medication	0
Give experience of successful actions	3
Dispels apathy	3

Gives feeling of being able to choose	3
Pleasure of activities based on music	6
Pleasure of meeting challenges	0
Stimulates two senses: seeing and hearing	5
Stimulates self expression (singing, dancing)	4

The staff was also asked what kind of expectations they have about the PG use from the point of view of their own work. This was also asked in a list of eighteen ready made alternatives. All had some expectations and the most frequently mentioned were that it will give variety for the care work (5) and that it will create topics for the discussion between the clients and the staff (5).

Table 2. Expectations of the staff on the impact of the use of the Picture gramophone on their work (T0), N=6

Expectations	Yes (n)
I don't need to give as much guidance as needed in many other activities	0
It will give variety for the care work	5
I don't need to do much preparation beforehand	1
It is easy to use	2
It does not increase demands in my work	1
It is quick to set up for use	2
It will create topics for the discussion between the clients and the staff	5
I will learn new new skills	3
I can't use it as often as I would like to	1
It will take time to learn to use it	2

The staff in the both centres recruited customs who were interested in music and/or singing and willing to participate the assessemnet study. In practise when these clients were using the PG some other clients showed interest in the use of the PG and they were invited to join in the session. Altogether 15 clients were recruited and willing to participate. They and their families were informed about the ENABLE project and the assessment of the Picture Gramophone. Informed consent was asked from the persons with dementia and from their carers. One spouse did not want that her husband would participate and he was not included in the study. In addition, one person is using the Picture Gramophone at ome and his information is given as a case story at the end of this paragraphe.

Before the assessment was started the staff filled in a questionnaire with each participant. The oldest participant was born in 1915 and the youngest in 1943. Most participants were women and lived with someone. During the first three weeks two participants dropped out from the study because they moved to institutionalised care (Table 3). Most participants were in a contact with their children and/or their grandchildren and/or other relatives but friends they met less frequently. When their socioeconomic background was classified according to their previous occupation four belong to the category called white collar and eight in blue collar. One had been working as an entrepreneur and one had been a house wife. They all had hobbies they participated at least once a month, many had hobbies associated with music.

Table 3. Reasons for dropping out from the study and what information had been gathered

Number	Diagnosis	MMSE	MMSE taken	Drop out time	Reason for drop out
--------	-----------	------	------------	---------------	---------------------

1003	Vascular dementia,	-	-	Before T2	Has stopped visiting the centre
1004	Alzheimer's disease	11	19.2.2002	Before T2	Moved to a residential home
1008	Prontomentalidementia?	0	2.4.2003	Before T3	Not interested in using PG
1010	Vascular dementia	-	-	Before T3	Passed away
1011	Alzheimer's disease	-	-	Before T3	Moved to long-term care

13 participants were able to see normally without glasses or with glasses, one had slight difficulty. One had a little difficulty in hearing and one had considerable difficulty with hearing normal speech but most heard normally. Nine participants had no problems with speaking but three had slight problems. One person was able to make himself understood only by gestures and another person's speech was very difficult to understand. Most participants (N=9) had no problems with sleeping but three reported slight problems, one moderate and one great problems with sleeping. Ten persons had no physical discomfort or symptoms but two had mild discomforts or symptoms and one marked and one severe. We can conclude that the abilities to see and hear were good enough to be able to use the multimedia program but some people had such a severe pain or other physical or mental symptoms or problems with sleeping that they very likely had some impact in their ability to concentrate.

The staff was asked to list main difficulties in caring each of the participants during the day time (Table 4) The number of problem per customer varied between 0 and 6.

Table 4. Main difficulties in caring of the participants during the day according to the staff interviewed in T0, N=14

Difficulty	Yes, n
Disorientation	3
Getting lost	5
Restlessness	3
Repeating same questions	1
Hiding things, packing up	0
Hallucinations	0
Stubbornness	2
Depression	2
Socially inappropriate behaviour	1
Difficulties in ADL	6
Difficulties in moving	2
Visio-spatial problems	3
Dangerous behaviour towards oneself or other people	1
Dizziness or problems with balance	6
Fretting	2

Table 5. Background characteristics of the participants in Finland in the beginning of the study and after three weeks and three months

	T0		T2		T3	
	N	%	N	%	N	%
Sex						
male	5	36	5	42	3	33
female	9	64	7	58	6	67
Year of birth	N	%	N	%	N	%
1914-1919	2	14	2	17	2	22
1920-1929	7	50	5	41	4	44

1930-1943	5	36	5	42	3	33
Location of the centre	N	%	N	%	N	%
Tampere	9	64	7	58	6	67
Helsinki	5	36	5	42	3	33
Diagnosis	N	%	N	%	N	%
Alzheimer's disease	6	43	5	42	4	44
Vascular dementia	2	14	1	8	0	0
Lewy-Body disease	1	7	1	8	1	11
Other type of dementia	2	14	2	17	1	11
No information available	3	21	3	25	3	33
MMSE	N	%	N	%	N	%
0-9	2	13	2	17	1	11
10-17	4	29	3	25	3	33
18-30	4	29	4	33	4	44
No information available	4	29	3	25	1	11
Use of prescribed medication for	N	%	N	%	N	%
depression	3	21	2	17	2	22
anxiety	3	21	3	25	1	11
pain killing	5	36	3	25	2	22

The participants were socially quite active and able since nine of them participated in most activities in the centre and had interaction with several people in the centre by their own initiative. Two participated in half of the activities, two in a few activities and one not at all. Two had hardly any interaction with other people, two usually answers when spoken to and one was initiative in interaction with some people.

The Picture Gramophones used in both of the centres were a selection of songs by Tapio Rautavaara who was very popular in 1950s-1970s, old well-known Christmas songs, selection of hymns, selection of popular music from 1940s and a selection of preferred slagers between 1950s-1980s. All the music selected was based on preferences of some or most customs in the centres.

Three weeks after installation of the ready made Picture Gramophones at the centre the participants were interviewed in front of the open program. When they were asked about how they felt about this music nine answered something positive. For example

Beautiful

I like all music except Jazz.

Good.

Good selection of well-known songs.

Three did not answer the questions. One of them had difficulties with talking and two were not present at the time the interview was made.

Eight answered positively for the question about how they feel about the device.

This is good especially if we can get some more songs.

I don't know but it is great to be here.

Music is so good that nothing else matters.

... This is nice and we have used it.

Four persons did not answer the question one of them did not answer because he did not understand the question and one had difficulties in talking and two participants were absent.

Eight found the Picture Gramophone easy to use and three did not answer, one had not used PG himself. Only one found PG difficult to use, seven not difficult but also here three did not answer and one had not used PG.

During the three weeks the participants had visited the centre 2-15 times (mean 5, median 3). According to the staff most participants had used the Picture gramophone in every visit and while using it they had sang along. Most of them had been using the Picture gramophone approximately one hour and the staff reported that four persons had had problems with the use. The problems mentioned were lack of self-help, problems in seeing the lyrics and problems with singing along if the tempo is too fast or too slow or if the tune is too high. The staff reported that only one person had not benefited the use of PG but all the rest had benefited: it had had a positive impact on mood and on social interaction. One person had reacted both very positively and very negatively with the use of it and his mood changed rapidly also before the study.

We can conclude that the response from participants with dementia and from the staff was similar: most participants had been able to use the PG sometimes independently but mainly with some help from the staff, the use had been mainly a positive experience and had caused hardly any negative impact on the users.

Table 6. Use of the Picture Gramophones in Finland after three weeks (T2), N=12

Have used the PG	N	%
On every visit	8	67
Less frequently than every visit	3	25
No answer	1	8
Had sung along/hummed/whistled	N	%
Yes	10?	83
No	2?	17
Length of use of PG at one time on average	N	%
15-29 minutes	1	8
30-59 minutes	3	25
60 minutes or more	8	67
Have had problems using the PG	N	%
Yes	4	33
No	8	67
Had benefited from using the PG	N	%
Yes	11	92
No	1	8
Impact of PG use on mood	N	%
Positive or very positive	10	84
Negative	0	0
Very positive and very negative	1	8
No impact	1	8
Impact of PG use on social interaction	N	%
Positive or very positive	10	84
Negative	0	0
Positive and very negative	1	8
No impact	1	8

After three months nine participants were still involved. Three had been dropping out from the study because of moving to institutionalised care or because one had lost his interest to attend PG-sessions. One participant had died. Those who continued were born between 1915-1934, five women and three men continued and their MMSE score varied between 1-27. In

fact all the participants with the highest MMSE score continued up to three months (0-9 N=1, 10-17 N=3, 18-30 N=4). Two participants dropped out in Helsinki and one in Tampere.

After three months data was collected only from the staff. They were asked to assess the potential positive impacts of the use of the Picture gramophone on the person with dementia by a ready made list. Their answers are shown in Table 7. Main positive outcome has been improved mood, supporting feeling of competency, enhanced self-esteem, and stimulated reminiscence. Only one reported negative impact and it was getting bored if not constantly supported in concentration.

Table 7. Feedback from the staff on the impact of the use of Picture gramophone on each user (N=9) after three months

Feedback	Yes, n
Use of PG has supported feeling of competency	5
Use of PG has supported independency	1
Has stimulated reminiscence	4
Has improved mood	8
Has decreased need for mood affecting medication	0
Has turned the attention away from the incompetence	1
Has decreased anxiety	0
Has increased interest in environment and towards other people	1
Has increased conversation	3
Has induced natural tiredness	0
Has decreased wandering	1
Has decreased need for sleeping pills	0
Has enhanced self-esteem	4
Has met individual needs	2

Eight participants continued up to six months when again, the staff was asked questions about main problems in care and their views on the impact of the PG use on their interaction with the client. All reported positive impact but one participant with dementia had negatively commented singing of the others and this had caused need for the carer to intervene. Several staff members told that they had danced valz with some participants and that they had been observing how the participants had enjoyed the singing or humming or just the listening to the music and/or reading the lyrics. By doing that some of them reported that they had learned new aspects about their clients. Reminiscence had also been mentioned by most staff members. The material in PG had been found stimulating most participants to describe their memories or participating such a discussion by listening to and nodding. The use of the Picture Gramophone had also raised feeling from laughing and smiling to crying. The staff members also reported that some participants needed more support than others:

With her one needs to concentrate well then she can follow, but if not then she gets bored and nervous. Hymns are important, but recently other songs had given her pleasure as well.

When the staff members were asked about the impact on their own work they called it stimulating or inspiring even if some of them were reserved about the idea in the beginning.

In the beginning I was not interested in learning how to use it at all. By time I had found out that it is nice thing to use. I have realised how the clients get involved in using it, "pressing" the screen themselves and singing, it is really great. It was nice when we had Christmas songs. I like so much Christmas songs and maybe that's why it was so pleasing for myself."

(staff member, Tampere)

They had also found the Picture gramophone to be a new activity and a way of providing adult like program for their clients. But they also commented that the songs need to fit for the older singers voice and that the rythm should be slow enough but not too slow. Some missed a key to be used if one wants to pause the song to helpt the singers to catch up the song.

Because in Finland the use of Picture Gramophone had been a group acitivity this was commented by the staff of the both centres in a very positive way:

"It is very good to get people together and to follow how the situation develops. All those memories, feelings."

Positive: group doing something together, getting active (for example dancing and listening to music), creating different atmosfare (from laughing to crying). It has been good to participate the project"

One case study

Mrs S used the Picture Gramophone at home. *Mrs G was born in 1927 and she lived with his husband. She had three children and eight grandchildren and was daily in a contact with some of htem. She also met her frinds daily. She used to work as a nanny. She did not have any problems in seeing, hearing, talking or sleeping but had some mild symptoms and pains. She uses prescribed medication for depressive symptoms and for Alzheimers disease. She had recived two diagnosis: Alzheimer's disease and frontal dementia. According to her husband she is intitative in social contacts and her main symptom is repetition of same questions. Her music preferences are religious music and dance music, not rock and roll or jazz. Her granchildren planned to make Picture Gramophones for her based on her preferences. They started the work but realised that they did not have enough time for it and after discussing with the family and the person with dementia it was decided that she would use the PGs which were made for the dementia day care centres.*

When she and her husband was interviewed after three weeks since the Picture gramophones were provided for her she had used it every day or nearly every day. According to her husband the use has become more frequent than in the beginning. She had sang along and used the Picture Gramophone approximately half an hour every time. According to her husband she does not have any problems with the gramophone and the use of the Picture gramophone had had a very positive impact on her mood.

Mr S: It has stimulated her...

Mrs: Very much.

She has always been socially very active and the use of the Picture Gramophone did not make any change on that.

Mrs S said that she likes ver much one of the hymns (Sun haltuus rakas isäni) and a song called Reissumies and she could not identify any one she did not like. She found the use of the Picture Gramophone easy but had some problems with touching the screen. Another difficulty she had experienced was opening and closing of the programm.

4.3 Discussion and conclusions of the Finnish assessment study

In early stage of the assessment of the Editor it became obvious that the Editor software needed further programming. As there was not funding available in the project for this work it

was decided that the project team will take main responsibility on the use of the Editor. Much emphasise was also put in supporting partners in other countries in the use of the Editor.

The use of the Editor was also quite time consuming since it was not easy to find all the songs mentioned by the participants with dementia. The final ready PGs were found satisfying from the point of view of on of the editor users but staff realised that some songs were too difficult to sing or simply too slow or too fast. Even if the staff presented some criticisms about the features of the Player they all were satisfied with the use of the ready made Picture Gramophones.

The use of the Picture Gramophones was almost entirely positive experience. It supported reminiscence and interaction and provided adult like activity for the centres. The response from the staff and from the persons with dementia was mainly in accordance and the national results suggest that the ready made Picture Gramophones provided an useful tool for persons with mild to moderate dementia and their carers. But when it is used individual needs have to be met.

The data collection after three months and six months should had been more extensive to give enough information about the frequency of use and more more in depth qualitative information on different aspects of the use. But the data collection was not found extensive by the staff members. Both centres continued the use of the Picture Gramophones after the trial.

5. Assessment study in Ireland

5.1. Editor assessment in Ireland

The assessment started in July 2002 with the installation of the program in Leopardstown Park Hospital hospital. T0

In Ireland originally one staff member from the day care centre was planned to work on the Editor but later it was found that she could not take part. The person who took over this tasks had 1.5 years of experience in dementia care. She worked in a day care centre where the assessment of the ready made-picture gramophones took place. She was 35-years of age and had no computer skills and needed two weeks training before the Editor training could be started. During this period she found the user manual not to be sufficient for enabling the user. She was very motivated and hoping it to benefit the work in the unit.

The aim in Ireland was to develop individual Picture Gramophones for each of the user. This task was found time consuming because the Player is using a music CD and no ready CD was found which included all the favourite songs of the users. The project was not able to provide a CD burned and this service need to be purchased. This process was found to be time consuming.

When the appropriate CD was found the lyrics of the songs was not always easy to find. Internet was used for this purpose but it transpired then that most songs had different versions

sung by different artist. When lyrics were found the user usually had to listen through the whole song and alter any differences which there may have been. This was the case for about 95% of songs which were used in the gramophone. Not all lyrics were found in Internet and then song books were used. If the lyrics could not be found it was up to the user to listen to the song in its entirety and write the lyrics down. This was found time consuming and frustrating process for the editor user.

In Ireland it was initially decided that in order to stimulate remembrance with clients the families would be asked to bring photographs and load them into the gramophone. This worked well with most of the photographs but in some the needed large file size corrupted the program if bitmap images were used. When scanned all images as JPEGs it worked well but the quality was not so good as the definition of the image must be reduced in order to reduce the file size to make it workable for the PG.

The PGs which were set up for individual use included personal photographs and because of problems faced in the scanning a Photo Shop needed to be used before the photos could be used in Editor. The use of Photo Shop reduced the quality of the pictures and this could hinder the opportunity to stimulate remembrance if the user has impaired vision. Scanning was excellent method of gaining pictures for the gramophone but requires computer skills.

When group gramophones were created images from the image bank were used or images were taken from the Internet. Downloading pictures from the Internet also proved to be somehow problematic. It was possible that pictures taken from the web may have, on occasion corrupted the picture gramophone software.

During the use of the Editor several technical problems were faced in buttons of the lyrics editor and errors causing work to be lost. Lack of technical support was also found. Technical problems caused extra work and delay in completing the project. The CD player interface was also found to be quite slow to respond to commands and had not worked on several occasions.

The person who used the Editor assessed the first ready PG very high in the scale from +10 to -10. The score she gave in scale including five questions was +4. She found the Editor very reasonable tool for herself but difficult to estimate how simple its use is. She was very satisfied with the training she received and was willing to continue the Editor use in the future.

After three months she reported that the Editor has been used 2-4 times a week and four PGs were ready. She had had some problems with the Editor and in a scale created to assess the usability of the Editor she gave a score -1 (minimum -10, maximum +10) showing that there had been especially problems in finding time for using it and in selecting music for the PGs. She found the result worth effort and said that she was very satisfied when the PGs were ready and the clients seem to enjoy using them. But due technical problems the use of Editor had sometimes been stressful.

Altogether four individual PGs were created and more gramophones were created for use in the communal area. The user of the Editor estimated that it took her two days to complete one PG if there were no technical problems faced but this is also depending on the size of the PG. The first PG creation took 32,5 hours for her to make. She would like to improve the size of the font and have bigger photos. She was also willing to use the PG with a PC projector.

Conclusions of the Editor assessment in Ireland

The fact that customised CDs were not found useful for making the individual PGs required use of CD burned. If the aim of the Editor development is that it requires low computer skills then help of a person who know such software will be needed. Compilations were found to be best CD format in relation to music variety.

A more instructive manual need to be created with images and more detailed information on the PGs use. Where the case is that the user is not familiar with the use of a PC on the job training is required. We conclude that the Editor was not robust enough at this stage to stand alone. The time taken to rectify the difficulties was at times extensive and delayed completion of the work.

Even if the user of the Editor hopes to go on using PG as a part of weekly activities she found the creation of new gramophones may be hindered in terms of time it takes to create a new gramophone. The ready made PGs were found satisfying and would see the Editor as a very valuable tool in dementia care.

5.2. Picture Gramophone assessment in Ireland

Ready made Picture gramophones and the Player were assessed in Carmen Day Care Centre where they have nine clients and three staff members per day. The philosophy of the centre was to maintain the individuality of person and networking with other agencies for wellbeing of the person. The centre is open eight hours daily. Singing, playing instruments, listening to music and music in the background were all part of daily activities. When asked about their expectations from PG use from the point of view of the clients the only one staff member who answered the questions chose 15 alternatives from list of 18 and added that she expected it to provide stress free procedures and encourage communication. She also expected PG to provide variety in their work, to create topics for discussion, give a chance for the staff to learn new skills but that it would take time from them to learn to use it.

Clients were selected for their suitability for using the PG. All clients bar one had an interest in music. Before the assessment started background information was gathered on each of the four participant (Table 8). They had either mild or moderate dementia (MMSE 20-13) and all except one had medication for anxiety. They all lived with spouse and were in a regular contact with their children and grandchildren. One had considerable difficulties in hearing, and three had slight difficulties with speech and one great problems with sleeping and one marked physical pain or discomfort. All the participants were in social interaction with some people by their own initiative in when visiting the centre and three participated most activities and one half of the activities in the centre.

Table 8. Background characteristics of the participants in Ireland, N=4

Sex	N	%
male	1	25

female	3	75
Year of birth	N	%
1914-1919	2	50
1920-1929	1	25
1930-1943	1	25
Diagnosis	N	%
Alzheimer's disease	1	25
Vascular dementia	3	75
Lewy-Body disease	0	0
Other type of dementia	0	0
No information available	0	0
MMSE	N	%
0-9	0	0
10-17	2	50
18-30	2	50
No information available	0	0
Use of prescribed medication for N	%	
depression	1	25
anxiety	3	75
pain killing	1	25

From the point of view of the staff the main difficulties in care were disorientation (4), difficulties in daily activities (4), repeating same questions (3), difficulties in moving (3), fretting (3) but also restlessness, hiding or packing up, hallucinations, depressions, visio-spatial problems and dizziness were mentioned.

In the beginning all the PGs used were created individually according to preferences of each of the clients and they were used one by one. All these sessions were organised by one staff member who also created the individual PGs. Later when more PG were ready they were also used as a group activity. Table 9 gives the basic results about the PG use but case studies provide a richer view on the use and usefulness:

IRL3001 One of the clients was very interested in music and would sing in the centre constantly. He did not need to be prompted to sing and would begin spontaneously. However when introduced to the PG. at first he became somewhat confused as to what he should do. This client's hearing was somewhat impaired. When the music would begin he had to be

prompted to sing aloud. However it was found that where a client would usually sing from memory the PG tended to cause some confusion. After prompting by the staff member the client would begin to sing. However the screen would then change and the client would be out of time with the song. The changing of the screen lyrics again would cause confusion. The staff member felt that some form of pause mechanism should be introduced into the PG player to allow the user to stop the music if confusion was caused. It was also felt that in some cases, it should be possible to turn the lyrics off and allow the music to continue.

While problems were encountered, this client did on the whole enjoy the experience. He did on occasion reminisce about his wife, his daughters wedding and his old job. He enjoyed pressing the screen and did not shy away from this. However he did need to be told to press the screen. On a couple of occasions he did this of his own accord. The client always remembered using the PG when he revisited it in following weeks.

Another client had some difficulty with the touch screen. This lady was wheel chair bound. Her hands were somewhat stiff and the touching of the screen was difficult. Therefore how the screen is positioned is important in allowing easy use for the client. She reminisced on many occasions about her family and foster children and in particular one young boy who she had fostered. She always enjoyed the experience of using the gramophone. On several occasions she asked to finish using the gramophone of her own accord.

Other clients were similar in this regard. Both reminisced when using the gramophone. In particular one client was involved in the creation of the gramophone itself. This went on for a short period of time however technical difficulties forced the editor user to discontinue this practice, as it could possibly have been a bad experience for the client.

Overall the participation of clients in the research was a positive one. All clients reminisced on various occasions with the use of personal photographs, which had been scanned into the PG. All clients found the break away from the communal centre as an enjoyable experience during their day and this also allowed the staff member to interact on a one to one basis with the clients. When the participants were interviewed three weeks after the PGs were installed one of them did not really see any need for such a product and did not answer most of the questions but all the rest were very positive about it and did not report any difficulties in its use. The answers by the staff were somewhat different: they reported more difficulties but concluded that all had benefited from the PG use. (Table 9) In open ended questions they specified the outcome:

"1st use of PG was positive and client was happy with its use. 2nd use was negative - client was having a bad day." IRL3001

Spoke and reminisced about two boys that she cared... Seems to cheered up since she came into room to use the PG. IRL3002

Always seems to be in good form when she finishes using the PG. IRL3003

Client did enjoy using the PG but does not participate in a way which the other clients do. IRL3004

Table 9. Use of the Picture Gramophones in Ireland after three weeks (T2), N=4

Have used the PG	N	%
On every visit	2	50
Less frequently than every visit	2	50
No answer	0	0

Had sung along/hummed/whistled	N	%
Yes	3	75
No	1	25
Length of use of PG at one time on average	N	%
15-29 minutes	4	100
30-59 minutes	0	0
60 minutes or more	0	0
Have had problems using the PG	N	%
Yes	2	50
No	2	50
Other	0	0
Had benefited from using the PG	N	%
Yes	4	100
No	0	0
Impact of PG use on mood	N	%
Positive or very positive	3	75
Negative or very negative	0	0
No impact	1	25
Impact of PG use on social interaction	N	%
Positive or very positive	3	75
Negative or very negative	0	0
No impact	1	25

After three months all the participants were still involved. During the three months of time some users had been initiative and relatively independent in the use while some others had needed help and encouragement. Two participants had had some negative outcomes of the PG use because of only one individual PG per person. The table below describes the outcome of PG use according to staff on the four clients.

Table 10. The outcome of PG use according to staff

Outcome	Yes, n
Use of PG has supported feeling of competency	1
Has improved mood	2
Has turned the attention away from the incompetence	1
Has increased conversation	3
Has enhanced self-esteem	2

5.2.1 Conclusions

The product

Because the gramophone is confined to the use of CD's and particular compilations it was often the case that songs on the CD's were too long. Clients may lose interest if the song went on too long. The staff member also felt that the ideal time for a song in the gramophone was between 2 minutes and 3 minutes to keep the clients attention. Songs often went on beyond this and the client would become disinterested. In order to end the song the gramophone would need to be stopped while still playing which at times interrupted the flow of the process of using the gramophone. Some pause device should be incorporated into the player.

The process of changing the CD to use a different gramophone can be somewhat off putting. The CD player interface in the Gramophone can be quite slow and sometimes when the CD

has been changed directly after the use of another gramophone the CD will not play. Fumbling around the client trying to make the PG work could perhaps lead to confusion and frustration.

Where client's vision was impaired the lyrics could be very difficult to see. It is suggested that a facility to enlarge the text be included in the Editor and Player. A solution to this problem was found by the staff member who has contacted the Blind Association of Ireland and is seeking funding to purchase a computer screen enlarger for those with impaired sight. She also felt that there is the possibility of using a computer projector and screen where the PG is used in larger groups.

5.2.2. Data collection

T stage interviews were delayed for several reasons one of which was the health of the clients at different points. A decline in health or a spell in respite meant that clients would miss out on the use of the PG on certain weeks. As the data collection took place over the summer months interviews were delayed as people took holidays. Technical difficulties also delayed interviews.

Individual or group sessions?

After the study other gramophones were created for use in the communal area. The experience of this is that the PG works better with particular groups and less well with others. It is probably useful to include a person in the group that is a natural singer and can stimulate a singsong and to find out in what kind of a group PG works well in terms of group dynamic.

In the centre they hope to go on using the PG as part of the weekly activities. However the creation of new gramophones may be hindered in terms of the length of time it takes to create a new gramophone and the availability of cover staff when someone is working on the PG. If working alone a new gramophone can take up to two days depending on the size of the gramophone to be created and the accessibility of music, lyrics and pictures, provided there are not technical difficulties.

6. Assessment study in Norway

6.1. Description of the day centre and the setting

The Norwegian trial of the Picture Gramophone took place in a day centre particularly adapted to care for persons with dementia. All visitors attending the day centre, 20 in total, were either diagnosed with or suspected to suffer from a dementia disease. The visitors came on different days, so the daily number of visitors was usually 13 people. The day centre was open for visitors during the weekends and all week days from 7.30 am to 3.30 pm. During the weekends usually 8 visitors attended the day centre. The number of staff working in the centre was four.

The philosophy of the centre was described by the staff as to support feeling of security by providing individual care, support feeling of belonging, to support living at home and give a break for family carers.

The day centre was situated in the ground floor in a large nursing home building. The area consisted of one dining room and one sitting room, a small kitchen, an entrance area, and two smaller offices for the staff. The area was limited and the staff did not know where to place the PG in the beginning, because the facilities were already crowded.

The PG sessions took place in the sitting room, or in one of staff's offices, which often was used for conversations and meetings. A group of three or four visitors were selected for the sessions, and the PG was used the days these people visited the day centre. In the centre they used music in sing alongs, in listening to and in the background.

6.2. The Editor assessment

The Editor is the programme used to put the preferred songs and pictures into the PG. It was made clear from the head staff, that none of the staff would have time to do this. One of the conditions for testing the PG was that everything should be ready to use. Therefore, two project workers came to set up the songs for Christmas, in December 2002. In January, one of the project workers returned to put in new songs and lyrics.

Criteria for choice of music

The music for the Christmas should not be a choir, it should not be too quick, like rock and roll music, and it should be in a tempo which the elderly easily could follow. Also, it was important to avoid long musical introductions and interludes without lyrics.

Procedure

The project worker had to search for CD's with Christmas songs, suitable for the group. The lyrics were written after carefully listening to the CD's. What the artist actually sang, could differ from any written text that might be found in a song book or on the internet. The words had to be consistent with the words the artist used, in order not to create confusion during the sessions. The lyrics were written in a word file and transported to the Editor on a diskette, as we were told this would be possible. It was however impossible to paste the texts into the Editor programme and all the lyrics had to be retyped: i.e. this was a more time consuming operation than expected.

When entering the lyrics into the Editor, it was nice to be two together – particularly because it was the first time, one retyped the text and the other kept an eye on the clock and made sure the right sentences were to be shown correspondently with the song played.

We put in twelve Christmas songs, and made this a first trial.

How the selection of music and pictures was done

In January 2003, we started to collect data from the four selected visitors, who had agreed to participate in the project, about their favourite music. We used a music preference

questionnaire, originally developed by Gerdner et al. (1), which was elaborated for Norwegian conditions by GERIA(2), Ullevål university hospital, Oslo.

The experiences with music preference questionnaire was mixed – the impression of the staff, was that it was difficult for the visitors to remember what songs they really appreciated. One of the visitors said she would like to have “*simple songs, that everybody can sing along... some quick and amusing ones*“ and then she started to sing “*Lisa gikk til skolen..*”.

A list of preferred music was put together, and one of the project workers went to the library to search for the songs. The same criteria for selection of music was important, and also the quality of the CD’s were utmost important to evaluate. The lyrics had to be typed manually, after listening to the CD’s – a very time consuming work. Finally the result was one CD with 26 preferred songs with lyrics.

Application for permission to copy music

In Norway, there is an obligation to apply for permission to copy music and lyrics. TONO is Norway's Performing Rights Society. A work of art is protected by law. TONO's issue licences for music users, collect fees from venues and producers, and distribute the money to the right owners. And after putting all selected songs and authors and composers on a list, TONO was most helpful in providing addresses and telephone numbers to all. The project worker contacted all the persons and companies having rights to the music and lyrics, to have permission to make a copy for the ENABLE trial. If the workload had been known, it would be better to contact only one record company and select actual song from this company only.

The Editor contains a selection of photos and pictures that might be used to illustrate the songs. In Norway, pictures chosen to illustrate the songs were picked from the archive that was provided in the Editor's programme. Sometimes, there were no suitable photos, and we would therefore prefer a bigger selection of photos. We did not scan and put in photos ourselves, which we know is an option.

Skills in computer's work

Both the project workers were experienced in using a computer at work. However, there were some problems in using a new programme, and the Finnish expert was contacted to solve the problems that occurred during the implementation of the edited text into the PG.

The staff at the day centre was less skilled in computer work, and one claimed not to be interested in computers at all. One of the staff members was interested in learning to use the Editor, however, lack of time put a stop for this.

The users estimated that it took them seven to eight hours to learn about the Editor, to find the material and create a PG. They found it easy to put in the pictures and titles and writing the lyrics and timing them. The difficult part was transporting the folders to the Player and making them easy to use for the staff. One of them assessed the value of first ready PG quite high (+4 in the scale from +10 to -10) but the other one lower (+1). They found it useful tool but not simple enough for the use. After three months they assessed it to be time consuming task mainly because of getting copy right issues clarified and would rather buy a ready software than create it themselves.

Conclusions

The Editor use was find time consuming partly due copy right issues. The users were motivated to use it but concluded it to take too much time. They would appreciate ready made PGs to be commercially available. They had problems with the Editor mainly in transferring the files into Player and clearly further development in this part of the Editor is needed.

6.3. The PG and Player assessment

6.3.1. Expectations by the staff

Before the assessment of the PG was started the staff members answered a question about their expectations concerning PG use on the clients. They picked up several alternatives in a ready made list the main expectations were that the use may have a positive impact on the mood, to stimulate self expression and to stimulate two senses and turn attentions towards something positive (see Table 19 in appendix). When asked about their expectations concerning PG use on their own work they expected PG to give variety in their work and give an opportunity to learn something new (see Table 20 in appendix).

6.3.2. How the PG users were recruited and selected

The elderly selected to participate in the trial was selected from the visitors who regularly attended the day centre. The staff knew them well, and knew about their interests, and could easily pick out those who were interested in music. Four persons were selected, and these persons were asked about their preferences in music.

The interview about preferred music happened as a private conversation; and the staff had to give suggestions to be able to collect some songs. According to the staff's experience, it would be better to collect opinions on music preferences in a group of the four visitors. Then they could be able to encourage each other, and remind each other of old songs they used to like.

6.3.3. Description of the ready made PG

Even if the project worker had prepared 26 songs and lyrics only 9 were implemented into the PG. The reason for this was lack of time, and that one project worker in collaboration with staff member assessed 9 songs to be sufficient in the beginning, and that it was possible to add more songs later. However, this was never done.

On the first page there were three options: old songs, old Swedish songs and Folk songs. One of these three pictures had to be touched before a new page with three optional songs appeared. When touching one picture or the title of a song, the music started to play and the text lines appeared on the screen correspondingly with the artist's singing. This made it very easy to follow the song, as long as the person was able to read the text. The text was rather big, and there were only 2 – 4 lines on the screen at one time, to facilitate reading and following the text.

6.3.4. The participants

The participants were around the same age, all lived alone and were widows with adult children. Only one man participated the study. Information on previous occupation was missing from all participants except one who had been a house wife. One had considerable difficulties in seeing but all had no problems in hearing. one person had slight problems in speech and one had mild physical discomforts. No one had problems with sleeping. Three of the participants had Alzheimer's disease. MMSE was known only from two of them. (Table 11)

Table 11. Background characteristics of the participants in Norway

	T0 and T3		T2	
	N	%	N	%
Sex				
male	1	25	0	0
female	3	75	3	100
Year of birth				
1914-1919	2	50	2	67
1920-1929	2	50	1	33
1930-1943	0	0	0	0
Diagnosis				
Alzheimer's disease	3	75	3	100
Vascular dementia	0	0	0	0
Lewy-Body disease	0	0	0	0
Other type of dementia	0	0	0	0
No information available	1	25	0	0
MMSE				
0-9	0	0		
10-17	0	0		
18-30	2	50	2	67
No information available	2	50	1	33
Use of prescribed medication for				
depression	1	25	1	33
anxiety	0	0	0	0

pain killing 1 25 0 0

The participants varied in their involvement of activities and social interaction in the centre. Two participated most activities, one in half of them and one only in some activities. Two were initiative in social interaction with some people, one usually reacts when spoken to and one had hardly any interaction with others. in the questions about main difficulties in daily care the staff chose only a few alternatives: problems in ADLs, repeating same questions and depression (see Tables 23 and 24 in appendix).

6.3.5. Use and usability of the Player and Picture Gramophones

The Player and the ready made PG was used by the persons in the trial group. At least one staff member was present during the sessions, and according to the staff they often had to instruct or remind the visitors in how to operate the screen. A couple of times the PG was introduced to the whole group, but few people could not sit close enough to read the text. In the summertime, the activity programme was more directed towards outdoor activities and the PG was not used during these months.

Three weeks after the installation of the ready made PG the three users with dementia were interviewed by staff. Only three persons had used the PG, the fourth participant had not been present on those days the PG were used. During these weeks PG had been used only twice. Two users found PG not easy to use but responded positively on the question about the music in PG. One said that she had never used it and do not understand anything about it.

According to care staff all the three users had used the PG around 30 minutes and all had sang along when using the PG. they assessed that two users had benefited from the use but one not because "she is always positive to music and songs, independent PG". They also reported that only one person has been stimulated to have more social interaction during PG use but in two users it had had no impact. The main challenge in use was that the participants did not touch the screen if not encourages and not always even then. (Table 12)

Table 12. Use of the Picture Gramophones in Norway after three weeks (T2) N=3

Have used the PG	N	%
On every visit	0	0
Less frequently than every visit	3	100
No answer	0	0
Had sung along/hummed/whistled	N	%
Yes	3	100
No	0	0
Length of use of PG at one time on average	N	%
15-29 minutes	0	0

30-59 minutes	3	100
60 minutes or more	0	0
Have had problems using the PG		
	N	%
Yes	3	100
No	0	0
Other	0	0
Had benefited from using the PG		
	N	%
Yes	2	67
No	1	33
Impact of PG use on mood		
	N	%
Positive or very positive	2	67
Negative or very negative	0	0
No impact	1	33
Impact of PG use on social interaction		
	N	%
Positive or very positive	1	33
Negative or very negative	0	0
No impact	2	67

After three months all the four participants were involved. All of them had used the PG or participated the sessions when PG was used. The staff assessed the impact of PG use on each user by choosing from a ready made list. Only two benefits were chosen: Has stimulated reminiscence (1) and has improved mood (4). The other comments by staff were:
She is fond of music and songs but closes her eyes and do not look at the screen. But she remembers how it works and that she must push/touch a picture to hear the music. N501

Has hardly participated the PG sessions. Sometimes he was absent or preferred not to participate N502

She is anxious about any changes and depressed because of her own life situation and talking about moving to an institution... Finds the PG enjoyable/amusing. Tells often others what picture to touch. Remembers how to do it. Finds the songs nice, but repetition is boring. N503

Do not understand that we have to touch the screen to hear the music. Won't do it herself, tells us to do it... Is very fond of music and songs. Follows the texts on the screen, but because of poor eye sight she finds the text small. After using the PG she always thanks us for the entertainment... She finds the music and the pictures nice. N504

One project worker was present during one music session and observed how the visitors managed the Picture Gramophone.

“Three chairs were placed in front of the screen, and the staff encouraged on of the participants to choose a song. “You’ll have to touch one of the pictures”, she said. One of the men, said: “Oh, well, then I’ll choose this lady.... Ingrid Bergman, she was really something..... she was pretty!” (The photo was in the middle of the three) He touched the photo and a new page with three more pictures appeared. The patients were sitting and waiting, nothing happened. “You’ll have to choose again”, said the staff member. “Again, said the man, I did just do that....” Then he started to read the titles and he chose the picture in the middle, and the music started to play: “Flickan i Havanna” All the patients paid attention to the screen, and the song along in the chorus, some of them song the verses, however not so enthusiastic. The song has several verses. After it ended, the staff said: “Who will choose a song now?” One other man stretched his arm and touched the picture in the middle – the lovely Ingrid Bergman: “I choose this pretty girl, he said” and sat back. The second page appeared with three new choices. The man was asked to continue, and he selected the picture in the middle, and “Flickan i Havanna” started again. It seemed that none of patients really discovered that the same song was played. After hearing the same song the second time, the staff tried to guide the participants to push other buttons, in order to help different songs to be played”.

Some questions were raised after this observation

Why did the participants tend to choose the picture in the middle – was it because it was in the middle? Was it because it had a clear face? Was it because it was a beautiful girl on the photo? Was it because she was a celebrity and they recognised her? Both men tended to select the song in the middle as well; this did not have a photo, but a drawing of some children’s cartoons.

What would happen if there were more pictures and songs offered at the screen? Would it be possible that they would choose differently?

When asking the head of staff at the day centre about the use of the Picture gramophone, she puts it this way: *“This (having the picture gramophone) means additionally one activity is offered and I find this positive. Songs and music are always positive for the clients. It is interesting to observe in order to learn about new and possible activities that we might be able to offer the visitors.”*

The staff at the day centre wanted to keep the PG for the next 6 months.

Case story about the use of the PG

The staff member noted:

“Ella (85 years old woman, N504) became anxious when I asked about informed consent for participation in the trial. She was afraid that she was not qualified to sing. (She used to sing in a choir). She neither could say anything about her music preferences, however she would like to have *“simple songs, that everybody can sing along... some quick and amusing ones “* and then she started to sing “Lisa went to school..”. I get the impression that the songs should be simple and well familiar, song that they learnt early in their lives and some hymns, the staff member noted.

After one month the report says: “Ella is active and engages in the activity. She is fond of singing. She cannot manage to read the lyrics until sitting very close to the screen. Actually, she looks seldom at the screen for a long time, she often sings along with the two first songs. She touches the screen, when asked to do so, but one time she tended to push all buttons except the one we wanted her to push. She is engaged in the beginning, but loses interest after a while. After four songs, she had fallen asleep..”

Two weeks later:

“Ella is engaged – she chooses songs and sings along.” None of the participants take the initiative to touch the screen. After playing for half an hour, the interest is decreasing, some can be sleepy while others tend to prefer to walk away. Nobody remembered the PG from last time”.

Two weeks later:

“Ella manages to push, and do engage in the activity. A bit too small text makes it difficult for her to read the lyrics. She manages the PG better and better, and touches the images correctly, and it seems she recognises the images as well. She teaches the other visitors in how to operate the PG. She finds the songs too few, and wishes for more songs: “*we are singing the same songs over and over again....!*”

Comments:

It seems that this woman’s level of function has varied. Actually she seems more tired the first part of the trial and more active and happy the last part of the trial. Her endurance is short, but she seems to enjoy the activity the time she pays attention. In the end of the trial, she seems to recognise the PG, because she tells others how to use it. Also she reflects over the selection of songs, and she is definitely not happy with this small selection.

6.4. Conclusions

The staff interviewed (all T-stages) the four participants during the whole trial period. This was decided because, for the time being, they had many patients with anxiety and there were other disturbances in the centre. Having an outsider doing the interviews could cause more noise and create confusion or put unwanted pressure on the visitors. The staff has written down exactly what the respondents answered on the questionnaires. Their experience was that the questions were not good, because the 4 respondents had problems in answering them. They answered with very few words and with little facts. One didn’t remember one minute after using the PG that she had used it, and was surprised having questions about something she never had used.

One of the respondents changed his days of attending the centre, and was not present the week-days the PG was used. He was therefore not offered this activity any more. It seemed easy for those not seeing the text to withdraw or lose attention. In these cases the staff maintained that an ordinary CD player would be just as useful.

The Picture Gramophone may represent an additional service on the activity programme in the day centre. The clients seem to appreciate this kind of entertainment for a limited time of period; twenty to thirty minutes seems to be ideal. The amount of songs offered should be broader and based upon individual preferences.

To provide more songs or new programmes of songs demand that one person must learn how to use the Editor. Since the operation is quite time consuming, this seems to be a major barrier due to both lack of time and lack of interest in computers. It would be easier for all end-users if the programmes were available from the record companies, on CD-rom.

7. Assessment study in England

7.1. The setting of the assessment study

The Picture Gramophone (PG) research in the UK is based at the Peggy Dodds centre in Bath. This is a day centre specifically catering for people with dementia and hosting between 70/80 clients per week. The daily average is about 22 attendees. Many of these people only attend on certain days and most vary in their experience of mild to moderate dementia. The Centre does not give them a medical assessment score for their condition. Six staff work a rota of day and shift patterns to ensure quality of care and to provide a wide variety of activities and resources for their clients. The manager, Pat Lysaght, has been in place for nine years and is a dedicated and inspiring team leader. She is committed to working through the Enable Research for the PG.

According to all the staff members person center care was the philosophy of the centre: to provide physical care when needed, providing companionship and warm caring environment, providing stimulating activities, to support the family care. Music was used in very many forms and ways: singing, listening to, in the background, playing instruments, musicians were invited to give concerts, carole concerts and church services were participated. Possibility of hear childrens' singing was also organised.

7.2. The Editor assessment

The Editor was installed in June 2003 in the room of a occupational therapist. Two persons a nurse manager and a nurse were involved in Editor assessment in the beginning. They both worked in the centre. they both had some computer skills and were motivated to use the Editor but worried about time needed. After three weeks after installation of the Editor program it had not been used because of lack of time and it was found necessary to find another solution for making the PGs even if both the staff members were motivated to use the Editor. The project worker then took over this task and created four PGs.

The project worker had good computer skills but found the scanner use problematic and lyrics editor time consuming and saving procedure not reliable. Finding the music and pictures was found not so labourious but it was difficult to find time for all these tasks. After getting the first PG ready she was asked to assess the Editor. In the score from +10 to -10 she assessed the useability of the Editor with score 0 and found it difficult to say if the ready made PG was worth to effort. In October 2003 the first PG was available. She continued the use but faced several technical problems in the Editor use also later. Problems with technical support were also faced due international cooperation.

According to her experiences the software of the Editor need to be simplified to be useable for the staff. She recommend the several improvents in the picture storage and in transference of the files from Editor to Player. There should also be staff training grants to break down anxieties and lack of technical competence. She found the one to one communications with the users with dementia very good and the users trusting and talkative on the subject of music and associated reminiscences.

Conclusions

According to UK experiences the Editor was robust for assessment and this caused several technical failures during the assessment. Despite of this several ready PGs were created. It can be concluded that much improvents are needed in the Editor to make simple enough for the use by staff. Lack of time to use the Editor was the main problem. Improvements in the Editor can only partly solve this problem.

The UK user concluded her experices in the following way:

It takes me approximately 2-3 days work to compile a song group from start to finish. Constant interruptions and, inevitable interaction with staff and clients at the centre, waiting for technical support, mistakes, delays etc all result in the compilation of P.G.s (music C.Ds) being a long slow process with an added loss of momentum due to working only one or at most two days a week. I would strongly recommend that future research employs someone full time over a shorter time scale to undertake the compilation of the P.G.s (music C.Ds) themselves. I would strongly suggest that this person needs a good level of computer literacy and access to continuous technical support. In my experience the editor cannot be easily mastered technically by a layperson.

7.3. The PG and Player assessment

7.3.1 Expectations

The PG was installed in a public space. Because of the time constraints and lack of confidence amongst staff led the project worker to formulate a step-by-step guide to the equipment and procedures of the PG. This information in this kind of format would have been helpful from the beginning. The information leaflet to the participants was simplified and the informed consent forms as well. Three ready made PGs were assessed even if the initial idea was to create more PGs (see 7.2. above). They were used in a group. Each completed PG consists of two song groups each consisting of six individual music choices: (i.e. each client has twelve songs with picture titles and complete lyric sheets to choose from).

Before the assessment was started the staff were asked about their expectation on PG use from the point of view of their clients. They chose 6 to 17 alternatives in a ready made-list (see Table 19 in the appendix). Mainly improvements on mood and interaction and stimulation for reminiscence were expected. When they were asked about what they expect from the point of view of their own work it was mainly to provide variety in their work, to learn new skills and to provide topics for discussion but they all expected it to take time to learn how to use it (see Table 20 in the appendix). One responded wrote about PG: "*...I'm frightened about it*" and another one: "*I wonder if technology is too advanced for the age group. Perhaps it would be more appropriate for future generations...*"

7.3.2. The users

Six clients were selected for the PG use in the beginning of the study. They age varied within ten years (born in 1916 to 1926), three men and three women were involved. Five lived alone and one with a spouse, four had adult children and grandchildren. According to their previous occupation they all had been in a labour force and their occupations were quite different (cabinet maker, clerical work, typist, dressmaker, french polisher, medical technician).

Table 13. Background characteristics of the participants in UK in the beginning of the study and after three weeks and three months

	T0		T2 and T3	
	N	%	N	%
Sex				
male	3	50	2	50
female	3	50	2	50
Year of birth	N	%	N	%
1914-1919	3	50	2	50
1920-1929	3	50	2	50
1930-1943	0	0	0	0
Diagnosis	N	%	N	%
Alzheimer's disease	0	0	0	0
Vascular dementia	0	0	0	0
Lewy-Body disease	0	0	0	0
Other type of dementia	0	0	0	0
No information available	6	100	4	100
MMSE	N	%	N	%
0-9	0	0	0	0
10-17	0	0	0	0
18-30	0	0	0	0
No information available	6	100	4	100
Use of prescribed medication for	N	%	N	%
depression	0	0	0	0
anxiety	0	0	0	0
pain killing	0	0	0	0

Two had no problems with seeing, one had slight difficulties, one considerable difficulties, one could not read text and one did not see enough to walk about without a guide. One had little difficulty in hearing, the others were able to hear normally. Two had moderate problems with sleeping and three had slight difficulties with speech. One had marked physical discomfort or symptoms. No one used prescribed medication for pain killing (one missing), anxiety or depression. There was no information available on diagnoses or MMSE of any of the participants. (Table 13)

All the participants participated in most activities in the centre and they all had social interaction with several people by own initiative. Answers to the question on the main difficulties in the daily care are shown in the tables 23 and 24 in appendix. Visio-spatial problems, fretting, dizziness, dangerous behaviour towards oneself or other people and repeating same questions were most frequently mentioned.

7.3.3. Use and usefulness of the Player and the PGs

After three weeks only four participants, two men and two women, were involved. There were no differences between those dropping out and continuing in the study concerning their social background, age, health or main difficulties in care. The reasons for drop out were technical: due lack of time and resources the number of participants was cut down to four.

The participants had visited the centre frequently during the time period, one person lack information here. Three had used Pg only once, one answer was missing. All four had sang along while PG was used and use had varied between 15 to 45 minutes. According to staff all had benefited the use even if three had had problems in use. The use had had a positive or very impact on mood and social interaction or no impact at all. (Table 14)

Table 14. Use of the Picture Gramophones in UK after three weeks (T2), N=4

Have used the PG	N	%
On every visit	0	0
Less frequently than every visit	4	100
No answer	0	0
Had sung along/hummed/whistled	N	%
Yes	4	100
No	0	0
Length of use of PG at one time on average	N	%
15-29 minutes	1	25
30-59 minutes	1	25
60 minutes or more	2	50
Have had problems using the PG	N	%
Yes	3	75
No	1	25
Other	0	0
Had benefited from using the PG	N	%
Yes	4	100
No	0	0
Impact of PG use on mood	N	%
Positive or very positive	2	50
Negative or very negative	0	0
No impact	2	50
Impact of PG use on social interaction	N	%
Positive or very positive	2	50
Negative or very negative	0	0
No impact	2	50

The benefits were described by the staff:
 "Loved it! Still talking about it." UK4003
 "Yes, he enjoyed it" UK4001
 "She loves all music so enjoys the session"

The main problem was with the screen: the participants did not want to touch it or they found the text too small. The staff expressed their disappointment for the fact that the pictures could be seen only before the song were chosen not during the the song.

When the persons with dementia were interviewed after three weeks two answered in a positive way about the music but two did not answer at all. In addition, two were positive about the product but two did not answer. One had found PG difficult to use and two easy.

After three months the staff gave their assessments on the use and usability of PG on each of the four clients. The results are shown in the Table 22 in the appendix. According to staff the following benefits had been experienced by all the users: the use had supported feeling of competency, it had stimulated reminiscence, increased conversation, and met individual needs. The problems mentioned were "would not touch the screen", "has never attempted to use PG of own volition" (n=2). The staff described the PG sessions in a positive way but mentioned the need for resources for such activity.

7.3.4 Conclusions

The UK researcher reported several problems during the assessment study one of them was trying to co-ordinate the baseline TOs in terms of clarity of procedures and confusion around copy. According to her it would have been useful to have a comprehensive set of questionnaires and explanatory manual from the beginning.

"We also experienced difficulties trying to identify times/opportunities to work with staff and equipment. Their workload makes time with the PG limited and fragmented. The training process both for myself and for them has taken a very long time. "

She also commented the questionnaires: *"Both staff and trainees expressed some dismay with the format of TO client questionnaires. We were unable to ask clients all of the questions. Their levels of confusion are such that they could not cope with being offered the range of choices. We needed to opt for single, general questions about health issues." "Each TO questionnaire has taken between 45 mins to 1hr and staff felt that this kind of focused 1/1 interaction could prove to be the most beneficial part of the research. Staff expressed anxiety in their TOs about time consumption and lack of technical prowess. Most thought that it would add significant pressure to their workload."*

According to her progress report *"Both PG trainee editors have expressed a dislike of the picture accompanying the software and all of them have objected to the word 'dementia' being shown to or used directly to clients. We now have a clear timetable of group and individual sessions relating to music and reminiscence. The clients have been unanimously positive about hearing music, but on being shown the PG all have said they cannot read the words on the screen."*

"Staff reaction to the PG's range of functions has been one of mystification and a sense of disappointment. Their initial understandings were that it would enable clients to listen to music while looking at evocative on-screen pictures. They feel that the lyric editor function is partly redundant, a) because the clients' vision often does not allow them to read the words and b) because remembering song lyrics once they have heard the tune is not a memory problem for them."

"There were some significant issues around the touch screen. Staff have expressed concern that a) sight impairment and b) fear of electricity, will make touching the screen an area of inhibition. Staff are concerned that this population of 70/80 year-olds are resistant to technology and suspicious of electrical appliances. They have held the belief all of their lives that they must not touch them! None of the participants wished to touch the screen at TO."

The report by the manager of the centre gives somewhat more positive picture on the use sessions and the whole report is given below:

Report about PG use by Peggy Dodds Centre Manager Pat Lysaght: *At the Centre music is very important to us. Every day, without fail, we will use music in some way to work with and communicate with our clients, all of whom have memory impairment. I was keen then, to participate in researching the use of the Picture Gramophone, though from the beginning I was not sure what to expect, as there appeared to be a general lack of knowledge about this system.*

Negative: The actual setting up of the system was a slow and laborious task. Typing in all the songs and making individual discs proved very time consuming. When up and running my first impression of the screen was disappointing. There seemed to be a lot of space wasted with the on-screen pictures being too small to be of any significance. A major drawback at this time was when anything went wrong with the Picture Gramophone. Time then had to be spent calling out the BIME engineer.

Positive: We have had a lot of fun. Working with Karen has really been enjoyable for all the staff and clients concerned.

The clients that we chose to be involved all appeared to enjoy the 1:1 partnership and it was certainly beneficial for their self-esteem. Once individual CDs were made I was pleasantly surprised by the individual responses to the touch screen. Certain clients seemed to take the lead in choosing title songs but generally there was less apprehension than I had expected in using such technology.

All the clients were able to see the words clearly and sing-a-long to the songs. Again, I cannot recall any references or remarks regarding the pictures on screen, which may indicate that they were too small to be significant. Using the Picture Gramophone with more than one user at a given time did induce a raised level of social interaction. Levels of concentration lasted longer than I had expected by certain users. All sessions were fun and ended on a happy note. In conclusion I do feel that the Picture Gramophone does have potential but modification would be needed. The whole setting up process (Editor use) is so time consuming that unless a particular person is identified and given the time, I cannot see the PG being used to its advantage in a busy setting. Once up and running, the individual CDs are fairly impressive and proved to be good fun. The main improvement here would be better use of the screen, at least ½ of which should be devoted to the picture. I cannot help but feel that this system is a little futuristic for our present older population. Indeed, it may be argued that it is an expensive and sophisticated Kar-e-oke machine. If promoted in its present state I personally cannot see it taking off as I feel the negatives outweigh the positives and stimulation of the memory with use of music and pictures are far more easily attainable.

8. Cross national results: the Editor

The Editor was assessed in Finland, England, Ireland and Norway. In all countries the users of the Editor had at least some experience in dementia either through care or research or both.

The original aim was to find staff members of volunteers working the day care centres to participate the Editor assessment but through the study it became clear that it was too time consuming to be done as a part of normal work in the centre. Project workers then needed either to give a lot of support for the users or take over the task of the Editor use. The staff in the centres was mainly positive about the potential of the Editor and thus, it gives a sign that there may be some potential for this kind of product if it is very quick and simple to use. The main aim of the ENABLE project is to increase knowledge about the use of enabling products by persons with dementia and because of this aim the modifications needed for the procedure in the Editor assessment were not seen problematic. Another alternative would have been to do further programming to improvement of the usability but no resources were available for that in the project.

The results from all the four countries were similar: there were many problems in use of the Editor and in getting the Picture Gramophones ready. But when ready most users were satisfied with the end product. It was also obvious that when more time than expected was needed to get the Picture gramophones ready this decreased the motivation to continue the use. It also may have affected on how the users assessed those Picture gramophones they made and for sure it was associated with the quite low ranking of the Editor in the question about whether the result was worth to effort.

Copyright issues is one barrier for development of the usability of the Editor. It would be much easier for the user if there are a large selection of songs, lyrics and photos in the Editor storage but according to copy regulations in the participating countries this would lead to complicated procedures which could also be quite costly. Another improvement suggested was that the photo should be seen through out the song played. This kind of ideas are very important for the further development of both the Editor and the Player of the ready Picture Gramophones.

9. Cross national results: the Player and the individual Picture Gramophones

According to the staff members, the philosophy of all the centres was to provide person-centred care and tolerance. Stimulation, activation and feelings of safety were emphasised as being of key importance in their daily work. Music was regularly used: in all centres it was listened to and used as a background and sing-songs were organised in all the centres. Request programmes and live music were less common. When the staff members were given a list of 18 expectations concerning PG use from the point of view of their clients, they chose 9.8 alternatives on average (FIN mean 8.0, IRL 16.0, N 9.5, and UK 11.7). This could be interpreted as a sign of high levels of motivation, but there could be mixed feelings about the issue.

At the beginning information was gathered on 28 participants with dementia, but after three weeks only 23 were involved. Two did not visit the centre within the three-weeks period, one moved to residential care and one person passed away. One person was excluded because making individual PGs took longer than expected and there was lack of time. More women than men participated in the study in all countries. Their age varied between 60 and 89 years (mean 77.5 years). The oldest participants were in Norway (mean 84.7) and the youngest in Finland (mean 75.5). Background information about the participants is given in Table 15. Two of the participants had considerable difficulties in seeing and another two had

considerable difficulties with hearing. One participant had great difficulties in talking so that people could understand him and one could only make himself understood through gestures. In addition, four had at least moderate problems with sleeping and three had marked or severe symptoms of physical discomfort. The sum score for functional ability varied between 5 and 11 (mean 7.6) indicating that most participants had hardly any or only minor problems in these functions. Eight participants used prescribed medication for anxiety or depression. We can conclude that the participants varied considerably by age, functional ability and state of health in every country.

Table 15. Background characteristics of the participants

	T0		T2		T3	
	N	%	N	%	N	%
Sex						
male	10	36	8	35	7	33
female	18	64	15	65	14	67
Year of birth						
1914-1919	9	32	8	35	8	38
1920-1929	13	46	9	39	9	43
1930-1943	6	22	6	26	4	19
Nationality						
Finnish	14	46	12	52	9	43
Irish	4	14	4	17	4	19
Norwegian	4	14	3	13	4	19
English	6	22	4	17	4	19
Diagnosis						
Alzheimer's disease	10	36	9	39	8	38
Vascular dementia	5	18	4	17	3	14
Lewy-Body disease	1	3	1	4	1	5
Other type of dementia	2	7	2	9	1	5
No information available	10	36	7	30	8	38
MMSE						
0-9	2	7	2	9	1	5
10-17	6	21	5	22	5	24
18-30	8	29	8	35	8	38
No information available	12	43	8	35	7	33
Use of prescribed medication for						
depression	5	18	4	17	4	19
anxiety	6	21	6	26	4	19
pain killing	7	25	4	17	4	19

In all countries at least half (total N=16) of the participants were involved in most activities organised at the centre. One person did not participate in any activities and the rest in some activities (N=6). In addition, in all countries most participants (total N=18) socially interacted with at least some people on their own initiative. However, two people usually only reacted when spoken to and three were hardly involved in any interaction with others at all.

In all the centres clients were interviewed about their preferences in music and songs and this provided the starting point for making the PGs ready for the assessment. The two daycare centres in Finland used the same PGs during the first three weeks. One PG included a selection of favourite hymns, another a selection of favourite songs from the 1950s and one was a selection of songs sung by a famous Finnish singer whose songs were mentioned by most clients. The pictures were either downloaded from the Internet or taken by digital

camera specifically for the purpose, or else they were old drawings. In Ireland and the UK individual PGs were made according to the preferences of each of the eight participants. In Ireland photos, from family albums were scanned and used, and some pictures were found on the Internet. In the UK a picture archive was created for the Editor and this was also done in Norway. In Norway, music was copied into the PG from several records according to the preferences of the participants. In all the countries lyrics were found in song books or they were written down by listening to the song. Because the Irish PGs were made separately for each individual, they were also assessed and used by each individual and a carer. In the UK sessions were organised with one or two users at a time. In Finland and Norway PGs were used in bigger groups.

The staff members reported that, during the three weeks, nearly half of the participants had used the PG every time they visited the centre and the rest less frequently. (Table 16) Most of the users had sung along, three had whistled or hummed three had just followed the music. The users sat by the PC for relatively long periods: eleven out of 23 for at least 45 minutes (median 30 minutes). In Finland the sessions were longer than elsewhere and the median was one hour (Table 16).

Table 16. Use of PGs by participants with dementia during the first 3 weeks (according to the staff members)

Have used PG	%	N
On every visit	43	10
Less frequently than every visit	52	12
No answer	4	1
Had sung along/hummed/whistled	%	N
Yes	87	20
No	13	3
Length of use of PG at one time on average	%	N
15-29 minutes	26	6
30-59 minutes	39	9
60 minutes or more	35	8
Have had problems using PG	%	N
Yes	52	12
No	48	11
Had benefited from using PG	%	N
Yes	91	21
No	9	2
Impact of PG use on mood	%	N
Positive or very positive	74	17
Negative	0	0
Very positive and very negative	4	1
No impact	22	5
Impact of PG use on social interaction	%	N
Positive or very positive	70	16
Negative	0	0
Positive and very negative	4	1
No impact	26	6

Even though staff members reported that every second user had some problems using the PG, all except two were said to have benefited from using it. (Table 16) In Finland only every third user had problems but in Norway everyone experienced difficulties at some time. According to both the responses of staff members and the users' own comments, the oldest users and users with severe dementia had more problems with using the PG than the other participants but the difference was not statistically significant. No statistically significant difference was found in difficulties in use of the PG between men and women, between different diagnoses of dementia or use or non-use of medication in the study population. But those who did not have problems with the PG were also more likely to benefit from its use (Table 17).

Table 17. Nonparametric correlations among study variables (N=23), Spearman's rho

	1	2	3	4	5	6	7	8	9	10	11
1. Times pwd used PG	–										
2. Has sang along/hummed/whistled	-0.23										
3. Impact of PG use to mood	0.26	0.39									
4. Impact of PG use to social interaction	0.34	0.34	0.77**								
5. MMSE	-0.25	0.41	0.24	0.34							
6. Functional ability	0.03	0.11	0.18	0.20	-0.11						
7. Gender	0.05	-0.01	0	-0.31	0.10	-0.28					
8. Medication	0.35	0.03	0.17	0.05	-0.40	0.33	0.23				
9. Participation in activities in dcc	-0.12	0.28	0.40	0.39	0.28	0.19	-0.05	-0.17			
10. Daily social interaction in dcc	-0.08	0.44*	0.39	0.46	0.45	0.31	0.04	-0.11	0.80**		
11. Age	-0.21	0.39	0.46*	0.10	0.37	0.11	0.32	-0.25	0.27	0.30	
12. Problems with PG	-0.23	0.15	-0.27	-0.48*	-0.14	0.27	0.21	0.32	-0.31	-0.24	0.01

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed)

According to staff, use of PGs had a very positive or positive impact on the mood of most participants in all countries except the UK where two out of four users were reported not to have any impact "because they are happy people already". Negative impact was reported in one person whose mood changed very quickly but this participant was also said to benefit because sometimes the impact was very positive. In addition, PG use had positive or very positive impact on most users' social interaction in all countries except the UK where all the users were socially very active already. For example, in Ireland it was reported that *'All clients reminisced on various occasions with the use of the personal photographs which had been scanned into the PG.'*

Cross tabulations and non parametric correlations (Spearman's rho) did not show statistically significant differences or correlations on the impact of PG use on mood or social interaction by gender, use of medication, severity of dementia or different type of dementia. (Table 17) There was a positive correlation between age and impact of PG on user's mood suggesting that the oldest users more often benefited from use than the younger ones.

Two case histories, one Irish and one Finnish illustrate the kind of impact PG use had on some participants:

Mrs W was 82 years of age and had vascular dementia with mild symptoms (MMSE 20). She was fond of listening to music and singing, gardening and conversation. She lived with her spouse and child and met other members of the family very often. She did not have any

problems in seeing, hearing or talking but had physical discomfort and great problems with sleeping. She had been prescribed medication for depression, anxiety and pain killing. In the daycare centre she participated in half the activities and had interaction on her own initiative with some people. The staff members listed many issues which caused difficulties in her care; such as hallucinations, repeating the same questions, hiding things, depression and difficulties in the activities of day-to-day life.

The PG used by Mrs W had been edited according to her musical preferences and photos in the PG showed familiar people or places. The PG had been used by her and a carer. On various occasions Mrs W had been waiting in to go the room to use the PG when she had been told that she could use it. The interview was conducted during her second session with the PG. When interviewed in front of the PG, she reminisced over a picture of a child close to her. When she was asked by the carer if she would like to hear another song she agreed and touched the screen even though she had said that she wouldn't know how to use the PG on her own. When the carer said, 'There that wasn't difficult to use' she replied 'No' and seemed visibly pleased. She sang along with the music. The carer reported that she had cheered up with the PG use.

Mr F was 81 years old and lived alone, but was in daily contact with his children and some friends. He had mild dementia because of Alzheimer's disease (MMSE 20). He liked folk music, especially music used for folk dances and old dance music. He had no problems with vision, hearing or talking, nor with sleeping and did not use any prescribed medication for depression, anxiety or pain killing. In the daycare centre he participated in most activities and took the initiative on social occasions.

He used the PG every time he visited the centre and spent approximately one hour with the PG each time. He had been inspired to sing because the lyrics had been visible and he had also danced with the music. When he used the PG for the first time in the group session, one staff member reported:

The first session showed how interesting the PG is. 'It is nice here' said Mr F to Mrs T and took her hand. They sang together and swayed in time to the waltz. Mr J who does not sing along was following the program and used it for playing more songs.

Next day the same staff member reported on a similar session:

Mr F's enthusiasm about the PG is spreading to the others. They all had a good time...'

Three weeks after the first PG had been used, all the participants with dementia were interviewed in front of the PG. Before and during the interview, the PG was occasionally used to support the interviewees. The users were asked about how they felt about the music. Five did not answer or were not able to answer and eighteen responded positively, for example: *'Its lovely. I love a sing- song.'* *'Oh it's wonderful.'*

When they were asked about how they felt about the device, the answers varied more and eight people were either not able to answer or answered that they didn't know. Thirteen answered in a positive way, for example:

'The music is so good that nothing else matters.'

'The device is working fine.'

'It's very good, technology is fantastic.'

'I like this very much. I haven't sat next to a man for a long time.'

'It is inspiring and takes my depression away.'

'Music has always been my hobby. I'm not a star, but it's fun.'

But one person who was a very good singer and remembered many songs and all the lyrics was not positive: *'Money could be spent in better ways... It is all very stupid.'* The staff member commented that the PG could hinder his ability to sing because he tried to read the lyrics on the screen rather than sing from memory. Another user with dementia commented that

'It is pleasant that it is sometimes quiet.'

The participants were asked in two separate questions if they found the PG easy or difficult to use. Those people who reported that they had not used the PG themselves were not willing to give any opinion and a total of seven people did not answer either of the questions. Twelve found it easy and five difficult. The PG was found easy or *'dead easy'* because

'You just touch it and the music starts.'

It was found difficult because support and help was needed:

'I wouldn't know how to use it on my own. No, I wouldn't say it's easy to use.'

During the interview, when participants used the PG some of them had problems with touching the screen for long enough. Another problem reported by staff was difficulty in seeing the lyrics.

The PGs had been used either in group sessions or in a session with one user or two users and a carer and all these three ways have been reported in a positive way. One field note on the individual sessions reported:

'All clients found the break away from the communal centre as an enjoyable experience during their day and this also allowed the carer to interact on a one-to-one basis with the clients.'

In one of the centres, they used the PG for organising a bigger event with 12 clients and four staff members:

'We did not sit next to the PC but used old dance music in the PG for our Midsummer dances. The clients chose the songs themselves.'

But some notes reported individual needs in group sessions, for example:

'Mrs E is against dancing and she comments very negatively when some clients start to dance. She gets over it later. She is very religious.'

Use and usefulness after three months

The testing of PGs and the Player continued up to three months in all the countries. In Norway and Ireland all the participants continued the use, in UK four participants continued the use and in Finland eight participants, altogether 21 persons. Reasons for dropping out before three months are presented in Table 21 (Appendix).

At this point the carers were asked to assess what positive or negative impact the use of PG had caused if any. A ready made list with 14 alternatives was given to them. According to carers PG use has improved mood of most participants and the use had stimulated reminiscence of a majority of the participants (Table 18; Table 22 in appendix). It had also increased conversation and feeling of competence of many participants and the carers reported that many participants had found that their individual needs were met in PG use sessions. In eight questionnaires the last alternative "other, what" was filled in.

PG inspires her to dance (Fin 1002)

Is fond of music and songs, but closes her eyes and do not look at all the scree. But she remembers how it works and that she must push/touch a picture to hear the music (N2001)
Finds the PG enjoyable/amusing. Tells often the others what picture to touch . Remembers how to do it . Finds the songs nice, but repetition is boring (N2003)
Laughed a lot - talked not only to the researcher but to companion users in the same session. Continued discussion after end of session. (UK4004)
Was very stimulated. Showed no anxiety about technology - would touch the scree. Very positive about choosing, with one eye was able to read screen. Had asked since on several occasions to use PG again. Remembers experience and researcher's name - associates PG with people. (UK4003)
Has asked about using PG again - has remembered experience after considerable time lapse (UK4001)

Table 18. Carers' assessment of any positive impact of PG use on the users, T3 (N=21)

Positive impacts, N	N	%
1-2	8	38
3-4	6	29
5-	7	33

The question about negative outcome was answered by ten carers but 3 of them were just stating there were no negative outcome but vice versa. The negative issues mentioned such as loss of initiative, getting bored are also symptoms of dementia and may not be associated to PG but some other comments need to be taken into account such as that person is worried about technology. Altogether the answers showed mainly positive outcome.

He likes to be there but after 20-30 minutes get bored and leaves F1041

She easily gets bored with it N2001

Has hardly participated the PG sessions. Sometimes he was absent or he preferred not to participate (N2002)

Do not understand that we have to touch the screen to hear the music. Won't do it herself, tells us to do N2004

If PG is used repetedly it can cause announyce or frustrations (I3003)

Anxious about expectations around technology, voice, negative feelings about "loss of voice"

Has not asked to use own volition and will not remember using it. Would not touch the screen - feelings of anxiety and nervousness about technology (UK4005)

The last question was about any other commets carer had in their mind about PG use. In Uk and in Ireland it was emphasised that some of the users benefited very much if there is one staff member to use it only with one client at time but that it is not possible because of small number of staff. They would also like to use PG on a regular base to get more benefit out of it. most other comments were about those participants who showed not much or any interest in PG. Accoprding to the carers these persons were not involved in any other activities in the centre either or they participated only a few activities.

10. Discussion

Most participants benefited from the use of the PG, music-based multimedia in all the countries. In our cross national study sample, the use or the usefulness of the PG was not associated with the severity of dementia nor with diagnosis of a dementing illness. Moreover, no associations were found with suffering pain, anxiety or depression compared with those who had none of these health problems. All these findings are encouraging because they suggest that multimedia combined with music can provide positive experiences for those people who are able to actively use the programs and those who mainly follow their use while remaining in the background, or just join in singing either from memory or by reading the lyrics on the screen. Because of a small study sample and a short follow-up time the results are only suggestive.

Most problems reported in using the PG concerned touching the screen or seeing the lyrics. The sensitivity of the touch screen may differ among screens produced by different companies and this may explain why only some centres reported the problem of touching the screen for long enough. The size of the screen limits the size of the font, but the font used should be as large as possible. The program has been designed so that if the user touches parts other than the photographs or the text boxes nothing happens. Thus, the user cannot cause any messages reporting errors on the screen. Low motivation of some of the participants to independently use the multimedia was reported in all the centres. This is in accordance with previous studies on assistive technology use but also with findings on involvement in different activities (Nygård and Johansson 2001; Ashida, 2000; Brotons, 2000).

One of the challenges in this type of study is how to involve people with dementia in giving information. In this study, participants were asked questions about the PG and its use and their ability to answer was supported by either keeping the PG on during the interview, or by using it before the interview. The respondents were more able to respond if the PG was on and in use at the same time, but answering was far more difficult if it was only used before the interview. Moreover, the words used in the questions were very important; if one word was uncommon (for example 'program'), it became more difficult to answer and more challenging to encourage participants to answer. Answers to all of the questions were very brief and this may suggest that a combination of interviews with other data collection methods, such as observation, might provide richer data (see for example Ashida, 2000). In our study, the fact that PG evaluation was carried out in several countries and at several centres set special requirements for the design of the data collection and the structured interview was expected to fit this type of study design. The centres in each country used the PG in a somewhat different way and they all had individualised PGs to meet the needs of their clients. This gives limitations for comparison but it provides information about the variety of ways in which different types of PG can be organised.

Responses from staff members was the main information source in our study. There was little disagreement between the staff members' response on each individual and the user's own response. However, at one centre the general comments by the staff were more negative than might be expected when reviewing other data received from the same centre. Results like these need further investigation.

The PGs were all based on music favoured by the clients at the daycare centres. In most previous studies music, and especially individualised music, has been found to be beneficial (Brown et al., 2001; Gerdner, 2000), so we needed to question whether the music was the only reason for the positive outcome of our study. On the basis of our preliminary findings we can conclude that the pictures and the music worked well together, but some problems were

reported in the use of lyrics. One aim of the PG is to stimulate interaction and, according to staff, there was much interaction while the PG was being used. The actual process of using the PG can stimulate interaction more than sing-songs, but our results here are only indicative (see also Olsen, Hutchings & Ehrenkrantz, 2000).

Our findings are in accordance with some previous studies on the use of technology in elder care. McConatha, McConatha, Deaner and Dermigny (1995) assessed the use of computer interaction for therapy, education and recreation of institutionalised older adults and concluded that computer interaction was an effective tool for increasing the participants' cognitive ability and daily living skills and decreasing their level of depression. A study by Pieper and Riederer (1996) showed that multimedia can provide stimulation and pleasure for people with moderate and severe dementia and when Olsen et al. (2000) studied an easy-to-use jukebox-type of a device in an Alzheimer's daycare centre they found a favourable impact on the well-being of the users. They suggest that such activity works well with a group of people. Due to the small number of participants and short follow-up period in our study, no generalisations can be made but the overall result was so positive that we can assume that multimedia is potentially a useful tool in dementia care if personal needs of the users are met.

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APPENDIX

Table 19. Staff members expectations on the use of the Picture gramophones in the beginning of the trial in Finland (N=6) Ireland (N=1) Norway (N=4) UK (N=6)

Expectations	Yes, n				
	Finland	Ireland	Norway	UK	All
Support independence	1	0	0	1	2
Stimulate communication and conversation	3	1	3	5	12
Stimulate reminiscence	5	1	3	6	15
Increase mood	6	1	4	4	15
Turns attention away from incompetence, illnesses and loses to something interesting	3	1	3	4	11
Decrease anxiety	3	1	1	4	9
Decrease critical reactions to others	1	1	1	1	4
Increase interest towards other people and environment	0	1	1	3	5
Support feeling of competence	2	1	2	2	7
Decrease need for sleeping pills	0	0	0	1	1
Decrease need for mood affecting medication	0	1	1	3	5
Give experience of successful actions	3	1	2	4	10
Dispels apathy	3	1	3	3	10
Gives feeling of being able to choose	3	1	2	6	12
Pleasure of activities based on music	6	1	3	6	16
Pleasure of meeting challenges	0	0	1	3	4
Stimulates two senses: seeing and hearing	5	1	4	6	16
Stimulates self expression (singing, dancing)	4	1	4	6	15

Table 20 Expectations of the staff members on the impact of the use on their work in the beginning of the trial in Finland (N=6), Ireland (N=1), Norway (N=4), UK (N=6)

Expectations	Yes, n				
	Finland	Ireland	Norway	UK	All
I don't need to give as much guidance as needed in many other activities	0	0	0	0	0
It will give variety in my care work	5	1	4	4	14
I don't need to do much preparation beforehand	1	0	0	0	1
It is easy to use	2	0	1	0	3
It does not increase demands in my work	1	0	0	0	1
It is quick to set up for use	2	0	1	0	3
The use of it will create topics for discussion between the clients and staff	5	1	1	5	12
I will learn new skills	3	1	4	6	14
I can't use it as often as I would like to	1	0	0	1	2

It will take time to learn to use it 2 1 3 6 12

Table 21. Reasons for dropping out from the study and what information had been gathered

Number	Diagnosis	MMSE	MMSE taken	Drop out time	Reason for drop out
1003	Vascular dementia,	?		Before T2	Has stopped visiting the centre
1004	Alzheimer's disease	11	19.2.2002	Before T2	Moved to a residential home
1008	Prontomentalidementia?	0	2.4.2003	Before T3	Not interested in using PG
1010	Vascular dementia	?	?	Before T3	Passed away
1011	Alzheimer's disease	?	?	Before T3	Moved to long-term care
2002	?	?	?	Missing T2 Information	The respondent NOR 502, were never at the day care center when they had planned PG-days. I m not sure why, if he was sick or something else...but he wasn't there. / After T3: Have moved to a nursing home and stopped visiting the day centre.
4002				Before T2	The reasons for drop out was technical: due lack of time and resources the number of participants was cut down to four.
4006				Before T2	The reasons for drop out was technical: due lack of time and resources the number of participants was cut down to four.

Table 22. Feedback from the staff on the impact of the use of Picture gramophone on each user in Finland (N=9), Ireland (N=4), Norway (N=4) and UK (N=4) after three months

Feedback	Yes, n				
	Finland	Ireland	Norway	UK	All
Use of PG has supported feeling of competency	5	1	0	4	10
Use of PG has supported independency	1	0	0	2	3
Has stimulated reminiscence	4	4	1	4	13
Has improved mood	8	2	4	4	18
Has decreased need for mood affecting medication	0	0	0	0	0
Has turned the attention away from the incompetence	1	1	0	2	4
Has decreased anxiety	0	0	0	0	0
Has increased interest in enviroment and towards other people	1	0	0	1	2
Has increased conversation	3	3	0	4	10
Has induced natural tiredness	0	0	0	0	0
Has decreased wandering	1	0	0	0	1
Has decreased need for sleeping pills	0	0	0	0	0
Has enhanced self-esteem	4	2	0	0	6
Has met individual needs	2	0	0	4	6

Table 23. Main difficulties in caring of the participants during the day according to the staff interviewed in T0 Finland (N=14), Ireland (N=4), Norway (N=4), UK (N=6)

Difficulty	Yes, n				
	Finland	Ireland	Norway	UK	All
Disorientation	3	4	1	1	9
Getting lost	5	1	0	0	6
Restlessness	3	1	0	0	4
Repeating same questions	1	3	1	2	7
Hiding things, packing up	0	1	0	1	2
Hallucinations	0	1	0	0	1
Stubbornness	2	0	0	1	3
Depression	2	1	1	1	5
Socially inappropriate behaviour	1	0	0	1	2
Difficulties in ADL	6	4	2	0	12
Difficulties in moving	2	3	0	2	7
Visio-spatial problems	3	2	0	3	8
Dangerous behaviour towards oneself or other people	1	0	0	2	3
Dizziness or problems with balance	6	2	0	2	10
Fretting	2	3	0	2	7

Table 24. Main difficulties in caring of the participants during the day according to the staff interviewed in T3 Finland (N=9), Ireland (N=4), Norway (N=4), UK (N=4)

Difficulty	Yes, n				
	Finland	Ireland	Norway	UK	All
Disorientation	3	0	2	1	6
Getting lost	3	0	0	0	3
Restlessness	1	0	1	1	3
Repeating same questions	1	1	1	3	6
Hiding things, packing up	1	1	0	2	4
Hallucinations	0	0	0	1	1
Stubbornness	2	1	0	1	4
Depression	1	1	2	0	4
Socially inappropriate behaviour	2	1	0	1	4
Difficulties in ADL	1	2	3	2	8
Difficulties in moving	2	1	0	1	4
Visio-spatial problems	3	0	0	1	4
Dangerous behaviour towards oneself or other people	0	0	0	1	1
Dizziness or problems with balance	5	0	0	0	5
Fretting	0	1	0	0	1

