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# Older People as Equal Partners in Creative Design

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**Abstract.** Active older people want to be actively engaged by contributing their experiences to design better services and products. This paper demonstrates the importance of older peoples engagement in the creative design process in a small study where older people were engaged together with designers in the design of digital devices. Three creative workshops were conducted: the first with designers, the second with designers and older people, and the third with older people only. During the illumination stage of the creative process flexibility and flow were measured with topics and turns. Results show that when older people were working with designers more topics and a higher total number of turns were developed than by older people or designers working on their own, which indicates that they had the highest flexibility of ideas and possibly also the greatest flow.

**Keywords:** Older People, Creative process, Creativity, Flexibility, Flow

## 1 Introduction

Active older people (from 55 to 74 years) desire to be part of society, they have fewer disabilities and shorter periods of illness than very old people (from 75 to 90 years); they care for their children, and they are financially independent [2]. Active older people are “*everyday people*”, who do not want to be just consumers, but also ‘*creators*’ [21]. Older people want to be actively engaged in their own healthcare services, as well wanting to know how services will be part of their life [7]. They have to cope with the various ageing and technological challenges that life brings. Interfaces, systems, services and digital products are designed for a broad market [11] and designed by designers, who know the technology, but are not familiar with older people’s life styles [13]. Older people’s influence on design is minimal and their attraction to services and products is low [13]. They are rarely engaged in the design process, and if they are, this is at the beginning in focus groups [20] or at the end as part of usability tests [8].

This paper describes a study that demonstrates, by measuring two components of creativity in the creative process (flexibility and flow), the importance of engaging

older people in the design process. The literature review introduces everyday creativity and different levels of older people's engagement in creative design. Components of the creative process are then presented, and following that, the case study. Our approach is described in section 5, following results, discussion and conclusions.

## 2 Literature Review

People use *everyday creativity* to find creative solutions to everyday problems [4]. Everyday creativity helps people to cope in daily life, increases physical and psychological health, well being, self-actualization and contribution to the world [18]. Ordinary peoples' creativity is not very innovative [18], and these people "*never produce anything that is publicly acknowledged or acclaimed*" [17]. However, the "*production of novelty can be fostered in everybody not just the chosen few*" [5]. For people who do not apply creativity in a daily routine, creative ability is likely to be latent, and therefore it is necessary to stimulate it, with the use of appropriate methods [20].

Researchers have involved older people in their studies with different levels of engagement from the more passive (e.g. to give feedback on the system), to more active e.g. as creative partners in co-design processes. Gaver et al [9] were the first to engage older people as creative participants, adopting Cultural Probes to collect their experiences, feelings and memories through diaries to identify their presence in local communities. Human Computer Interaction (HCI) studies involve older people as subjects providing opinions on design through participation in focus groups, for example in redesigning interactive systems [12]. Participatory design (PD) studies involved older people as inspiration for designers in designing various future prototypes, for example, in transforming mobile phones into specially-designed memory aids [16]. Another PD method used in Healthcare Service design adopted for gathering patients experience is Experience Based Design (EBD) [1] which [7] and [3] implemented with older patients to improve an outpatient health service in the UK. Finally, older workers were engaged in the preparation stage of the co-design process to investigate their lifestyle and values using Design Probes and Make Tools [25]. Our case study was building among others on approach [9] and research [25].

## 3 Components of the creative process

Some of the most important work on the nature of creative processes has been carried by [10] and [6] among others. The four characteristics of creative processes: fluency, flexibility, originality and elaboration were identified by [10]. Understanding of flow by [6] has become central to our understanding of creativity.

The first to identify flexibility as one of the components of divergent thinking was by Guilford [10] who stated that "*creative thinkers are flexible thinkers*" and distinguished between two types of flexible thinking: i.) spontaneous flexibility that is the ability to produce "*a great variety of ideas*" and ii.) adaptive flexibility which facilitates the solution to a problem. Also interested in the idea of flexibility as a characteristic of creative thinking, describing it as "*the number of categories of ideas that were*

generated” was [24]. Building further on this definition, [26] view flexibility as “the number of different approaches or categories of ideas produced”.

Perhaps the best known for defining flow during the creative process was Csikszentmihalyi [6], who described it as “the optimal state of experience that yields novelty and discovery”. Experience of flow occurs for every activity or people, gender, age or cultural background; sportsmen, artists, scientists and ordinary people [6]. The concept of flow includes among others the following elements: clear goals for every step of the way, immediate feedback given to one’s action, action and awareness are merged, distractions are excluded from consciousness, there are no worries of failure, sense of time becomes distorted, and activity becomes autotelic [6]. The importance of flow was also recognised by Cropley [4], as well as Kerne et al [14], who state that results from the creative process include direct products (for example innovation) and experiential by-products, one of which is flow. The definition of flow by [14] is as follows:

*“Flow is an intrinsically rewarding motivational and behavioural state in which one’s experiences are optimal. Flow activities facilitate concentration and involvement. They enable people to achieve peak performance, by generating feedback that sustains engagement. ... Flow states are highest when one is successfully engaging in challenging activities. Flow occurs in activities with clear goals and unambiguous feedback. .... The experience of flow has been correlated with the production of creative products.”*

#### **4 The case study**

Participants in the study included 9 designers (HCI design researchers and HCI post-graduates) and 9 older people (recruited from an organisation which provides IT training for older people). The designers were aged between 27 and 48 years of age and older participants were aged between 57 and 78. These participants took part in three separate workshops: the first workshop (‘designers’ workshop’) involved 6 designers, working together in two groups of 3 (referred to as ‘yellow group’ and ‘red group’). The second workshop, the ‘mixed workshop’, involved 3 designers and 3 older people. These participants also worked together in two groups of 3, where the ‘yellow group’ included one older person and two designers, and the ‘red group’ included two older people and one designer. Finally, the third workshop (‘older people’s workshop’) involved 6 older people, also working in two groups of 3 and referred to as ‘yellow group’ and ‘red group’ [23].

The design process followed the Wallas-Poincare four stage model of the creative process including preparation, incubation, illumination and verification [27]. The first part, intended as preparation, involved the use of Cultural Probes and was conducted individually. The second part of the process involved different group creative activities in the creative workshops to support the three remaining stages of incubation, illumination and verification.

In the preparation stage, participants worked individually on a package of Cultural Probes for a period of one week. The main aim of Cultural Probes was to mentally prepare participants for activities in the creative workshop by thinking how, where and when they used a computer. Participants were asked to complete a workbook and to develop a Mind Map which illustrated their relationship with computer, and maintain a 7-day diary about how they used their computer. When they finished they were invited, in an interview, to explain their work, thoughts and drawings.

During the 5 hours long creative workshop participants were asked to design a digital device for the older population. The incubation stage, among other activities also included brainstorming exploring questions ‘*what will the device do?*’ and ‘*when, where and how will the device be used?*’, stimulated by use of ‘*Creative cards*’, containing a concept (e.g. ‘*connection*’) and visual image relating to one of the key questions. At the end of this session participants had a chance to vote for the ‘*golden idea*’, which was then developed further in the next illumination stage. At this stage participants were asked to develop their ideas in three different ways: visually, using storyboarding techniques - ‘*Draw it*’; as a concrete prototype, using materials from a ‘*Magic box*’ - ‘*Make it*’; or verbally, by recording an oral description or written concept definition - ‘*Tell me*’. The session finished with presentations where participants presented their ideas. Finally, in the verification stage, participants were asked to evaluate their own and the other group’s ideas in terms of novelty and appropriateness using a questionnaire (for information see [23]).

## 5 Approach

All workshops were video recorded in order to allow later analysis of the creative process. Based on experiences from the pilot study we decided to analyse data from the illumination stage, which lasted approximately 45 minutes. For this analysis, we chose to use ‘*topics*’ and ‘*turns*’ as our main units of analysis, and as indicators of flexibility and flow, as described above. A topic was defined as ‘*discussion, or exchanging of ideas, among members of the group about a certain theme*’ and typically lasted from one to ten minutes. A new topic was judged to start when a person in a group asked a question or started a conversation about a different theme from the previous one. The topic finished when the discussion was interrupted for some reason, for example: when someone started a conversation on a new theme or asked a question, which was not related to the previous theme. Topics were, for example, discussions about the design of the device (illustrated below) [23]. A turn was defined, according to [15] as “*sentences spoken by a participant until his or her partner next spoke*”, and speech by one participant that contained a significant pause was segmented into two turns. The following example of a discussion between two designers (D1 and D2) and an older person (OP1) about a personal safety alarm illustrates the way in which a conversation was broken down into turns. Each turn is shown starting on a new line [23]:

*D1: And it should have one big button.*

*D2: Maybe one big one in the middle.*

*D1: Yes. It is some kind of release button - you press it again and it will pop out.*

*OP1: I'm a bit worried. If you fall and if you panic, I don't think that you will remember to press it once or twice or three times. But, I don't know.*

*D2: You can have green.*

*OP1: Oh, you can have a colour. When you press the button a colour comes.*

*D1: It could light up; the whole button could light up.*

Based on the definition of flexibility as “*the number of categories of ideas that were generated*”, it was possible to use the number of topics discussed by a group as an indicator of the variety of ideas they considered, and hence their flexibility [4]. Thus, a group who covered a wide range of topics could be said to exhibit high flexibility, and therefore be collaborating more creatively than a group that covered only a low number of topics.

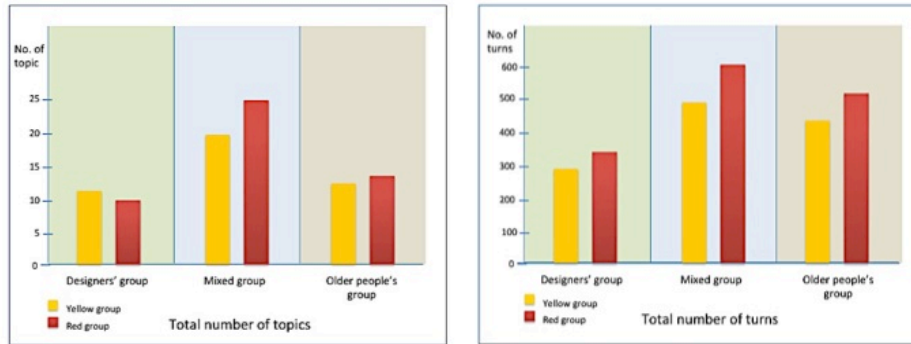
Flow was defined as being characterised by many factors, including obtaining immediate feedback on one's actions [6] and also defined flow in individuals: “*flow occurs in activities with ... unambiguous feedback*” [14]. Building on these definitions, we used turns, or responses of one group member to another, as indicators of feedback, and hence flow in a group context. Thus, a group with a high number of turns could be said to exhibit good ‘*group flow*’ [23].

Alongside measuring different parameters during the design process also a small study – an on-line survey with two independent external experts was conducted. Experts evaluated final outputs by watching videos where groups presented their work and evaluate them in terms of their appropriateness and novelty for older population. Definition for appropriateness stated as “*Artefacts need to have some potential value, it must be useful or appropriate*” by [28] and novelty was defined as situated creativity (*S-creativity*) which occurs when “*a designer or reasoned has an idea for a specific task, which was novel in that particular situation*” [24].

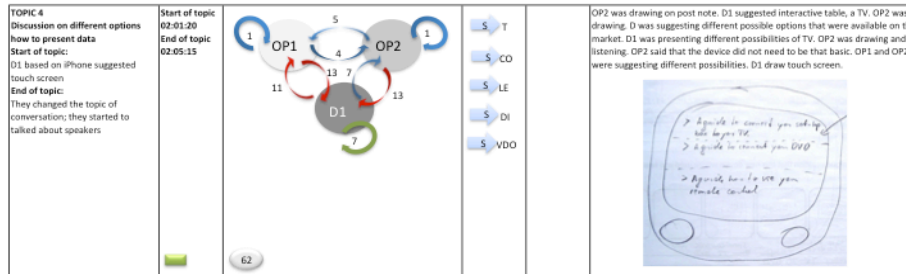
## **6 Results**

According to our analysis (Fig. 1), the mixed groups covered the highest numbers of topics (20 and 25), suggesting that they demonstrated the greatest flexibility (Chart 1, left). The mixed groups also had high numbers of turns (491 and 604), as did the older people's red group (513), which indicates high levels of flow (Chart 2, right) [23]. Figure 2 shows a prototypical example of a section of the conversation for the mixed red group, where there was good flow. In this example, there is a high number of turns in the topic (62), and approximately 16 turns per minute during this exchange. We can see a high number of exchanges between the designer (D1) and the two older people (OP1 and OP2). Closer examination of the notes in column 6 reveals that all 3 participants were engaged in a discussion about design options for a new device based on existing technology (TV and touch screens), and the photograph shows a sketch of the design idea that was generated during the conversation. There were some examples of poor flow, especially in groups of older people only, where participants spent a minute or more with no productive conversation [23].

In summary, more topics and a higher total number of turns were developed by mixed groups than by older people or designers working on their own, which means that they had the highest flexibility of ideas [10] and possibly also the greatest flow [14]. A review of the workshop outputs by external experts also suggested that when older people and designers work together they may design more appropriate products for the older population than designers or older people working alone.



**Fig. 1.** The Chart 1 illustrates the higher number of topics and therefore high flexibility in the mixed groups, in comparison to both the designers' and older people's groups (left) (Source: Sustar, 2010, vol.1 p. 231). The Chart 2 presents the total number of turns and high levels of flow in the mixed groups (Source: Sustar, 2010, vol.1 p. 232).



**Fig. 2.** Example of good group flow (Source: Sustar, 2010, vol. 2, p. 115).

## 7 Discussion

The evidence shows that while older people make different contributions to designers in the design process their contributions are equally important when designing digital devices for the older population. While designers contribute knowledge of what is possible, older people contribute their life experiences and an understanding of what would be appropriate for the older population. In the mixed groups designers were challenged by the older people's views on what would be usable by other older

people. Also mixed groups developed the most positive conflict, discussing more different options and had lively information exchange which were leading to more complex ideas.

## 8 Conclusion

According to several of the measures used in our study, it appears that the most effective way of including older people in creative workshops aimed at the design of digital devices may be to include them as members of teams in which they can collaborate directly with designers. Perhaps the least effective approach is to have older people working in teams where they can collaborate only with other older people. These findings obviously need to be treated with caution, since they are based only on an initial lightweight analysis of the data, and a relatively small sample of participants. However, they suggest interesting avenues for further research.

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