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THE COGNITIVE IMPACT OF ART-GALLERY INTERVENTIONS FOR PEOPLE WITH DEMENTIA.

Section A: What does current research evidence tell us about the impact of arts-based interventions on cognition in people with dementia?

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Section B: The impact of art-viewing and art-making on cognition in people with dementia within a gallery setting.

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Summary of the Portfolio

Section A

This section contains a literature review which considers the current research evidence reporting on the impact of arts-based interventions on people with dementia, with a specific focus on the impact of these interventions on cognition. Peer reviewed literature in the field of arts and health for people with dementia was examined. Fifteen studies were reviewed, including those discussing the cognitive impact of literary art, performing arts and visual arts. The review highlights the paucity of research in this area and the exploratory nature of the existent studies. The review provides rationale for further research to be conducted in this area to expand the current evidence base which suggests that arts-based interventions can impact positively upon cognitive skills in those with dementia.

Section B

This study explored the impact of two, eight week programmes of art-viewing and art-making in a contemporary art-gallery setting for people with dementia and their carers. Sessions were audio recorded and transcribed. Content analysis was used to assess the impact of the intervention on cognitive skills including verbal fluency and memory. Findings suggested that both verbal fluency and memory, increased overall, across the 8 sessions, suggesting that interventions such as these have the potential to have a positive impact on cognition in individuals with dementia, for whom a decline in cognitive skills is the most notable loss. Although this study is exploratory, building on further early research in the area, the findings provide rationale for further research and to encourage clinicians to consider facilitating the establishment of interventions of this kind in the community for people with dementia.

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THE COGNITIVE IMPACT OF ART-GALLERY INTERVENTIONS FOR PEOPLE WITH DEMENTIA.

SECTION A

What does current research evidence tell us about the impact of arts-based interventions on cognition in people with dementia?

WORD COUNT: 8032 (210)

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Abstract

Dementia is a progressive condition, affecting increasing numbers of people, characterised by cognitive decline. The current systematic review aimed to evaluate the research evidence pertaining to the impact of arts-based interventions on cognition in people with dementia. A literature search was conducted and peer reviewed articles on the topic were screened against the inclusion and exclusion criteria. Fifteen studies were included in the review, including those related to literary, performing and visual arts. The review highlighted the paucity of good quality research in this area, with the included literature consisting largely of small scale research studies with methodological limitations including lack of control groups and small, often poorly defined samples. All studies reviewed, suggest that arts-based activities can have a positive impact on cognitive processes, in particular on attention and memory. The existent literature has provided a rationale for further research to be conducted in this area, with the included studies reporting a largely positive impact on cognition, particularly in terms of attention, stimulation of memories, creativity and communication.

Keywords: literary arts, visual arts, performing arts, dementia, cognition

This review aimed to assess current research evidence relating to the impact of arts and health interventions on cognition in people with a dementia. Definitions of dementia, cognition and arts and health have been provided. Consideration has been given to the existent research pertaining to the psychological effects of such interventions and theories relating to the cognitive impact of art. Relevant empirical studies have been evaluated and the implications for practice and future research have been discussed.

Dementia

Dementia is a progressive disease characterised by a widespread impairment of mental functioning (NICE, 2012; WHO, 2012). Dementia is an umbrella term describing the symptoms which may be experienced by individuals with various brain conditions including: Alzheimer's disease, vascular dementia, dementia with lewy bodies, and Creutzfeldt-Jacob disease (Alzheimer's Society, 2013_b). Dementia sufferers can experience disturbance of cognitive functions including memory, thinking, orientation, comprehension, calculation, learning capacity, language and judgement. These are usually accompanied by difficulties with emotional control, social behaviour or motivation (WHO, 1992). Dementia mainly affects older adults with prevalence reported to almost double with every 5 years of age post 65 (Flier & Scheltens, 2005). In the UK in 2010 there were 820,000 people diagnosed with dementia, which is reported to cost £23 billion per year (Alzheimer's Society, 2013a). The number of people with dementia worldwide is projected to more than triple by 2050 (WHO, 2012). This rapid increase can be attributed to people living longer and healthier lives and means that support for dementia sufferers and their carers is of utmost importance.

Dementia and cognition

Cognition refers to a number of higher mental processes involved in gaining knowledge, including perception, memory, language, problem solving, and abstract thinking

(Gerrig & Zimbardo, 2002). Dementia is characterised by significant decline in this range of skills. Decline in any combination of these can significantly impact an individual's functioning. Difficulties in communication and other cognitive processes can contribute not only to social isolation but also to displays of behaviour which could be considered as challenging, such as aggressive behaviour (Allen-Burge, Stevens & Burgio, 1999).

Despite this, to date, the only non-pharmacological intervention recommended for cognitive symptoms is cognitive stimulation therapy, which involves activities aimed at stimulating and engaging people (NICE, 2012). There is an increasing body of research into alternative non-pharmacological and community-based interventions and their impact on the quality of life (Douglas, James & Ballard, 2004). One particular area where such research is emerging is the arts (National Endowment for the Arts, 2013).

Arts, health and psychology

Dating back to the 18th century, it was widely believed that the arts had the potential to have positive effects morally, emotionally and spiritually (Carey, 2006). It is evident that this view persists today, with recommendations that arts and health interventions are a necessary part of health care provision and are considered to have benefits for health and wellbeing (DOH, 2007).

The Arts Council England defined arts-based activities as those which aim to "improve individual and community health and healthcare delivery, and which enhance the healthcare environment by providing artwork or performances" (Arts Council England, 2007, p.5). This definition can include performing arts such as music and theatre, visual art and literary arts such as poetry and creative writing.

Emerging literature suggested that arts and health interventions can improve cognition, memory and well-being (National Endowment for the Arts, 2013). Douglas et al. (2004) recommended arts-based interventions for people with dementia to provide

meaningful stimulation, social interaction and improvements in self-esteem. Killick and Allan (1999) suggested that the arts allow individuals to express thoughts and feelings as well as enabling them to assert their individuality, suggesting that this is aligned with Kitwood's (1997) person-centred approach to care which emphasises the importance of consideration of the person as an individual.

An examination of the potential benefits of arts and health programmes which are community-based is important as such programmes potentially provide easily accessible, non-stigmatising and low cost interventions which may improve quality of life.

Benefits of art in older age and dementia

Emerging research in the area of non-pharmacological community arts-based interventions has found evidence of wide reaching psychological and social benefits for older people and in particular for those with dementia. The Mental Health Foundation (2011) conducted a review of participatory art interventions for older adults, including results from 31 studies, with key findings including positive effects on mental wellbeing, physical wellbeing and societal attitudes. Cohen et al. (2006) reported the positive impact of chorale singing including both rehearsals and performances, versus usual activity in adults over 65. They reported higher ratings of physical health including less medication use, fewer falls and doctors visits, as well as higher morale and less loneliness than those participating in a usual activity control. Fischer and Specht (1999) indicated that creative activities contributed to a sense of competence, purpose and growth. Other forms of art-based activity have been found to have similar effects. Doric-Henry's (1997) study of a pottery making programme for older adults, found increased self-esteem and reductions in depression and anxiety. Social benefits of artistic activities have also been noted by Wikstrom (2002), who found that discussions of visual art resulted in older women self reporting being more socially active in comparison with a control group. Noice, Noice and Staines (2004) compared a theatre-based

intervention, a visual arts intervention and a control group in older adults. The results indicated improvements in both cognitive and psychological well-being in individuals who had participated in the theatre intervention and the visual art intervention was reported to have provided significant cognitive and social stimulation.

Further to the positive effects of arts-based activities for older adults, emerging research has looked at the impact on people with dementia. Arts-based activities including music, visual art and drama have been shown to have the potential to provide meaningful stimulation and to have a positive impact on social interaction and self-esteem (Killick & Allan, 1999). In non-controlled studies, art participation has been shown to reduce anxiety, aggression, agitation and apathy (Caulfield, 2011). One example of this is Phillips, Reid-Amdt and Pak (2010) who reported a creative storytelling intervention produced improvements in affect, social interaction and communication skills. An exploratory study by Gregory (2011) also noted improvements in quality of life and care after a poetry intervention.

In studies involving music listening, not including music therapy, short and long term effects on quality of life and emotional well-being have been evidenced (Clément, Tonini, Khatir, Schiaratura & Samson, 2012). El Haj, Fasotti and Allain (2012) noted that individuals when exposed to their choice of music, reported more specific memories with emotional content and that these were retrieved faster than when elicited in silence. Irish et al. (2006) similarly found significant improvements in autobiographical memory in individuals who had listened to Vivaldi's 'Four Seasons' compared with a no music condition. These findings suggest that interventions including music may be beneficial for this population; however, little research has been conducted outside of the remit of music therapy.

Drama based interventions have been reported to increase quality of life, helping dementia sufferers and caregivers to communicate and impacting on the behaviour of people with dementia (Lepp, Ringsberg, Holm & Sellersjo, 2003). Stevens (2012) described the impact of a programme of stand-up comedy and improvisation, demonstrating improvements in sociability, memory, learning and self-esteem.

The making and viewing of visual art has also been found to have positive implications for health and well-being. Carey (2006) suggested that this cultural assumption dates back to the 19th century, when it was assumed that art improved people and that access to public galleries would affect this. Rosenberg (2009) postulated that visual art programmes provide "mental stimulation and cognitive exercise" (Rosenberg, 2009, p. 94).

Research in this area included Mittelman and Epstein (2009) who evaluated 'Meet me at MoMA', a monthly programme for people with dementia and carers that involved art-viewing and discussion in art galleries guided by museum educators. The programme, evaluated by independent researchers, reported positive changes in mood and in social interaction. Similarly, Kinney and Rentz (2005) evaluated a visual art programme for people with dementia and found increased interest, attention, pleasure and self-esteem. Artistic programmes have also been described as providing opportunities for creativity, learning, communication and enjoyment (Ullan et al., 2013). Activities involving making art are also reported to have benefits in terms of individual well-being, with 80% of participants expressing pleasure (Rentz, 2002).

Although research suggests significant benefits of such programmes for people with dementia, little of the research focuses specifically on the potential impact of such interventions on cognitive skills. Caulfield (2011) commented that anecdotal observations of 'Artists for Alzheimer's' programmes which include visual art, drama, music and dance,

suggested improvements in cognitive skills including sustained attention, short and long term memory and verbal expression.

Cognition is arguably the most significant and notable 'loss' for dementia sufferers meaning that interventions which may have a positive impact on these areas of functioning may provide an invaluable intervention, with potential secondary impact on social, emotional and behavioural factors, particularly if they can be conducted in the community, outside of a clinical setting.

Cognition and Art

The potential benefits of the arts on cognition are varied and well documented. An evolutionary perspective sees art as serving important functions in relation to issues as fundamental as survival and reproduction. In particular, Voland and Grammer (2003) suggested that art improves cognition and therefore, the making of adaptive decisions relating to survival, for example mate selection.

Junker (2010) argued that art has played a decisive role in the evolution of humans, suggesting that the genotype of an organism can be revealed by the way the organism shapes its environment. Junker also suggested that creation of art provides an expression of an individual's traits and thus their genes, which is important for mate selection. As well as this, he argued that art provides a means to co-ordinate the feelings and desires of individuals within a community, promoting co-operation.

Access to art-based activities has been said to contribute to cognitive functioning, to optimise remaining cognitive capacity and stimulate brain function in dementia sufferers (Caulfield, 2011). Kahn-Denis (1997) suggested that art allows individuals to be expressive and thereby, bypass some of their cognitive deficits.

Various theoretical explanations aim to explain the impact of different arts-based activities on individual cognition. Artistic activities provide sensory and emotional

experiences as well as memories and cognitive associations to past experiences which arguably impact on cognitive functioning.

Leder, Belke, Oeberst and Augustin (2004), devised a model which discussed the key cognitive processes involved in perceiving visual art. These included, the use of perception to analyse the artwork, the ability to integrate aspects of the art work with own experience and knowledge, cognitive mastering and evaluation and interpretation. This model suggests that several distinct cognitive capacities are activated in the viewing of art which are translated into cognitive output. As well as this suggestion of activation of cognitive capacities, the 'Meet me at the MOMA' project, which involved art-viewing, purported to be based on the theory that art activities, visual art in particular, release trapped emotions, which allows art work to stimulate attention and encourage communication (Rosenberg, 2009).

In terms of memory specifically, Baddeley (1992) proposes that working memory is enhanced when auditory and visual modalities are integrated. Art interventions, such as art-viewing with discussion, arguably combine these modalities, accounting for improvements in working memory.

Fischer and Specht (1999) suggested that participation in artistic activity develops problem solving skills, although this has not been considered widely within research papers. The impact of art on cognition at a neural level has also been considered with Wilson and Bennett (2003), suggesting that mental activities, such as art can affect "development or maintenance of the interconnected neural systems that underlie different forms of cognitive processing" (Wilson & Bennett, 2003, p. 89). In terms of literary art, research has also suggested that poetry can stimulate inner neural processing of language which has the potential to impact upon brain pathways, impacting on emotion and memory function (Davis, Keidel, Gonzalez-Diaz, Martin & Thierry, 2012).

Posner, Rothbart, Sheese and Kieras (2008) provided an explanation for the link between arts-based activities and cognitive improvement. Their theory posits that interest in the arts leads to motivation, this motivation in turn leads to sustained attention and it is argued that improvements in attention lead to improvements in other cognitive processes. They suggested that attention training leads to cognitive improvements beyond the training exercises themselves, hereby concluding that arts training, could have positive implications for other cognitive processes. This theory does however suggest that for this process to take place a prior interest in the arts is necessary.

Jonides (2008) similarly noted the importance of the attentional network in exploring the impact of music and acting training on memory. His theory suggests that music and acting training lead to the development of strategies of rehearsal, a component of sustained attention, which leads to memories being maintained and which can transfer to other cognitive functions. Both this and the findings of Posner et al. (2008) were based on research conducted with younger people but provide a useful basis upon which to consider the mechanisms by which participation in the arts may impact positively on cognition in other populations.

Methodology

A systematic review was undertaken to examine research literature regarding the impact of arts and health interventions on cognitive processes in people with a dementia. Search terms were based on those used in related research but expanded to include a focus on cognition and specific forms of art intervention (Appendix A). Searches were conducted of the following databases: PsychInfo, Cochrane Reviews, Web of Science and Medline, no date parameters were used. Google Scholar was also used and all relevant articles were hand searched for relevant citations (Appendix B).

Peer reviewed research articles, written in English, which reported some cognitive impact of an arts-based group intervention with those with dementia were included. Arts-based activities included visual, performing and literary arts, as defined in previous arts and health review papers (Fraser & Sayah, 2011). Articles were excluded if they did not specifically consider the impact of the intervention on any one cognitive process. Studies combining arts-based activities with other non-arts-based approaches, such as reminiscence or physical activity, were excluded due to the difficulty in attributing the results to art-related factors. Dance interventions were not included due to the overlap with physical exercise interventions. The multimodal characteristic of dance makes it difficult to evaluate its effects (National Endowment for the Arts, 2013) and to compare them with other arts interventions.

Studies which used interventions identified as 'therapy' were excluded from the review. The British Association of Art Therapists (2011) described art therapy as a form of psychotherapy that uses art media in order to communicate, with the aim of personal growth. This review aimed to assess community interventions which did not necessarily require trained therapists to facilitate them.

Due to the paucity of research in this area, strict methodological criteria were not enforced and the methodological issues relating to each study and to the literature base as a whole have been considered.

Existent research examining impact of art on cognition

Fifteen studies were included in the review (Appendix C), seven of which related to visual arts, five to performing arts and three to literary arts. Studies were evaluated with consideration of Greenhalgh's (2010) criteria for critiquing research literature. Qualitative studies were assessed considering quality criteria outlined by Yardley (2000) who suggested characteristics of good qualitative research include; sensitivity to context, commitment and rigour, transparency and coherence and impact and importance.

Literary Arts.

Holm, Lepp and Ringsberg (2004) evaluated a 6-week group intervention involving storytelling for six people with severe Alzheimer's disease and their caregivers. The group was run by a nurse who told stories relating to Erikson's developmental theory; she kept a reflective diary throughout which was analysed using content analysis. The analysis revealed several themes, including; stories awakening memories, storytelling generating involvement and curiosity and encouraging conversations about difficult topics. Although these results focus more on the social impact of the group, within the themes noted, there is some suggestion that cognitive processes such as memory retrieval and attention were activated. The study was qualitative and relies solely on the reflective diary of the facilitator, analysed by the authors who arguably were invested in the success of the group. Riessman, (1993) as cited in Yardley (2000) proposed that participant views on facilitator's interpretations should be sought, but that these views should not erode the importance of these interpretations. However, the study arguably provides important understanding and impact in an area with little prior research.

Phillips et al. (2010) conducted a pilot study, which assessed the effect of 'TimeSlips' on individuals with dementia. Twenty-eight participants took part in a twice-weekly story-telling intervention sessions for six weeks whilst 28 others were allocated to a usual care control group. In the 'TimeSlips' groups, participants were shown photographs and facilitators used prompts to encourage collaborative storytelling. The Functional Assessment of Communication Skills (FACS) and Mini Mental State Examination (MMSE), among other more general quality of life measures, were completed by nursing staff at baseline and two post intervention time points. The findings reported small to moderate increases in social communication and basic needs communication at the first post intervention time point, declining four weeks later, indicating short term benefits. However,

reliability of nursing staff ratings on the FACS was variable, with poor reliability reported for the basic needs subscale. Participants varied significantly in terms of the severity of dementia experienced and the impact of this on results was not reported.

Billington, Carroll, Davis, Healey and Kinderman (2013) described the 'getting into reading' intervention completed with 61 participants with dementia in care homes, hospital wards and a day centre. Progression of participants' dementia varied. Reading groups varied in the different settings in terms of duration of intervention and inclusion of participants with mental health problems, making it difficult to directly compare groups. In the groups, reading material was read aloud and open discussions were facilitated. Staff completed the Neuropsychiatric Inventory Questionnaire (NPI-Q) at baseline and every four weeks during intervention. Semi-structured qualitative interviews were conducted with staff following the groups and were analysed using thematic analysis. As with the above studies, they did not assess impact on cognition specifically but results indicated findings relating to cognitive processes. NPI-Q scores were lower during the reading group than at baseline, and qualitative interview responses suggested that groups enhanced memory, listening and attention. The lack of control group and variation in matching of intervention groups makes comparison and generalisation of results difficult. The study however, suggested that reading groups may impact on cognitive processes in individuals with dementia and suggested further research is conducted.

Performing arts.

Few studies arose within the performing arts of drama and music, which were not described as 'therapy'. The current review however, was interested in community-based artistic activities which were not administered by trained therapists. According to research, there are four types of music intervention which impact upon people with dementia: music therapy, caregiver singing, background music and live music. Music therapy was excluded

from this review as explained above. Caregiver singing and background music were also excluded as these do not constitute a community-based intervention.

Van der Vleuten, Visser and Meeuwesen (2012) assessed the impact of live music performances on the quality of life of 45 people with mild and severe dementia. Participants were balanced for gender and dementia severity, measured by the researcher with criteria developed in previous research. The study described the implementation of live music performances to small groups of participants in which performers specifically attempted to initiate contact and participation from individuals. Quality of life was assessed by caregiver-completed rating scales on dimensions of participation and mental well-being, both of which included a consideration of communication. These scales were built on theoretical concepts and are reported to have good internal consistency. The study concluded that live music performances increase communication, social contact and participation in people with mild dementia. It was suggested that this effect was not found for people with severe dementia due to their decreased cognitive capabilities. Limitations of this study included the use of a small sample size, subjective caregiver ratings on non-standardised measures and the absence of a control group.

Sherratt, Thornton and Hatton (2004) similarly investigated the impact of live music in comparison with recorded music and no music, in a repeated measures design, on 24 people with moderate to severe dementia who displayed minimal engagement. The study found that the live music condition produced significantly more engagement, arguably representing the cognitive process of maintaining attention. Continuous time sampling using dementia care mapping codes as a guide was used to observe variables. Good inter-rater reliability was reported with regard to continuous time sampling codes, with any codes with low reliability being excluded. Authors found levels of engagement were related to cognitive ability with participants who scored lower on Mini Mental State Examination (MMSE)

spending more time asleep or not engaged in meaningful activity, although this may be expected.

Davidson and Fedele (2011) reported results of two singing programmes for 48 dementia sufferers and their carers. The 6-week singing programme sessions were video recorded and evaluated using standardised measures and specifically designed measures completed by carers and the group facilitator. Results on measures designed specifically for this study suggested positive improvements in social interaction and memory. The standardised Hierarchic Dementia Scale was completed to reveal any changes in cognitive functioning over the course of the intervention. However, this did not indicate significant change over time and it was concluded that this may not have picked up on the subtle changes initiated by such a short term intervention. Participants with dementia themselves rated on a five-point Likert scale, their experiences of feelings associated with singing and observational data was obtained from the group facilitator and carers. Carer ratings, at pre and post time points, suggested that improvements in short term memory occurred in 29 per cent of participants and no decline in memory was reported the remaining 71 per cent. Carers rated long term memory as unchanged. A review of video footage found that 67 per cent of participants were able to keep attention focused on the activity for the whole session. The study did not report who conducted the review of the video footage, but does state that this was done in consultation with carers and the group facilitator.

Camic, Williams and Meeten (2011) evaluated a pilot ‘singing together’ group run for ten people with dementia and family carers over a ten week period. Researchers measured various aspects of quality of life including engagement and cognitive status both pre, post and follow up, using both standardised measures and interviews with carers and individuals with dementia. Seven dementia sufferers and eight carers completed all measures. MMSE scores, indicating cognitive status, varied for each individual, with some improving and some

deteriorating. However, engagement was reported to be very high, with each participant's engagement being measured for five, 30 second periods throughout each session, suggesting the activity was enjoyable and maintained participant attention. This study raised an important issue regarding the nature of dementia as a process of decline and the difficulty this causes in terms of measuring intervention outcomes. As decline is expected throughout the course of a dementia, it is difficult to know what contribution the intervention has had on the process or speed of decline.

The authors usefully reported the type of dementia experienced by each participant and the fact that nine were taking medication for dementia. It is also reported that all participants scored between 0-33/144 on the Neuropsychiatric Inventory, indicating a low level of behavioural and psychological problems. In qualitative interviews, both carers and those with dementia commented on the benefits of new learning during the groups, suggesting some cognitive stimulation. This was the first study where a follow up period of ten weeks had been reported in an arts-based programme. Limitations included the lack of a comparison group and a small sample size.

Research has also begun to examine the impact of other performing arts on dementia, with an interest in cognitive abilities. Lepp et al. (2003) investigated the impact of two group interventions in 12 dementia sufferers and their paid carers in Sweden. People with dementia were allocated to one of two groups, one which involved rhythm and songs and the other which involved storytelling. Ten one and a half hour weekly sessions were conducted. Data was collected from one focus group with carers from both groups, conducted one month after programme completion, meaning that the two groups unfortunately cannot be compared. The one month time gap may have allowed time for effects of the programme to emerge, although it may mean that some carers did not recall some of the more minor changes the groups may have initiated. Analysis of qualitative data, conducted using principles of

phenomenography, revealed two categories; interaction and professional growth. The interaction category included subcategories of greater communication and reactivated memory and suggested that intervention impacted positively on the carer's relationship with the person with dementia, increasing communication between them. Caregivers also felt that the intervention led to a re-activation of the memories of the people they support. The data is to be interpreted with caution, as it is not possible due to the multi-modal interventions, to attribute changes to any one component of the interventions. Also, although it was stated that data were analysed using principles of phenomenography, the process of analysis was not elaborated upon; further transparency around this is preferable (Yardley, 2003).

Visual art.

Several studies reported results from visual art programmes including art-making, art-education and art-viewing. The majority of these did not aim to specifically focus on the impact of the intervention on cognition, however, several reported improvements in specific cognitive processes.

Rentz (2002) and Kinney and Rentz (2005) described the impact of the 'Memories in the Making' art programme. The programme involved weekly sessions of art-making facilitated by an artist who was knowledgeable about dementia. The studies measured the impact of these sessions on overall well-being. Within this, they considered the measure of sustained attention which is a cognitive mechanism. Rentz (2002) conducted this programme over several sites and asked staff to evaluate one participant for one hour and to rate 12 indicators of well-being on a 4-point Likert scale, a measure devised by authors. They suggested that from 41 participants, 83 per cent sustained attention for 30-45 minutes, something which can be difficult for someone with dementia. As a pilot study there were several methodological limitations including; lack of control group, measurements only being

taken in one session, leaving evaluations vulnerable to transitory factors, and the use of multiple raters without consideration of inter-rater reliability.

Kinney and Rentz (2005) aimed to further evaluate the 'Memories in the Making' project and in doing so sought to account for some of the methodological difficulties with the above pilot study. The authors observed individuals participating in the art programme as well as in other activities. The observation tool was revised and rated by trained observers rather than staff members and adequate inter-rater reliability was reported (Kappa coefficient 0.65). The validity of this measure however, was not commented upon. A small sample size of only 12 participants was obtained and within this there were variations in presentation from diagnosed dementia to confusion, the type of confusion experienced was not specified. In terms of sustained attention, the observation tool rated whether an individual had sustained attention for 10 minutes, whether they required verbal prompting during the activity and whether they engaged in conversation and were then able to resume focus on the activity. The study found that sustained attention was significantly higher when participants were engaged in the art programme than when engaged in 'other traditional day centre activities', such as word games and crafts. However, observations of the 'other activity' always took place immediately following the 'Memories in the Making' programme, making it possible that participants became fatigued, accounting for the drop in sustained attention. Despite the methodological limitations these results are interesting in light of the suggestion within the theoretical literature that sustained attention can lead to improvement in other domains of cognition (Posner et al., 2008).

Ullan et al. (2013) presented an exploratory qualitative study in which 21 individuals with dementia took part in five artistic education workshops in Spain. These workshops involved an educational aspect as well as art production. Participants were observed during these sessions by two of the authors who completed field logs and summary forms relating to

each participant, recording information such as a rating of participant attention, whether they completed the work and whether they enjoyed the workshop. Following completion of the programme focus groups were carried out with the participants, carers, two educators who conducted the groups and an observer. It is possible that the inclusion of the educators who facilitated the group, may have influenced participant responses to be more positive. It is also important to consider that there may have been some observer bias as observers were also authors of the paper. The methodology used to analyse focus group and participant observation data was not indicated, preventing replication. Observations of sessions suggested that participants were interested and committed to the activity, arguably an indication of sustained attention as discussed in other studies. Observations also indicated that the programme promoted communication, indicated by participants spontaneously initiating conversation about various topics including discussion of memories of their own personal and professional lives. Focus group data indicated participants reporting that they felt they had learnt something new from the group.

As a component of participant observation, artist educators completed a summary form about each participant at the end of each session which reported in 81 per cent of cases that participants sustained attention throughout the whole session. Focus groups were analysed with attention paid to participant attention to and communication about art work. Video recordings of focus groups were reviewed by two authors who concluded that participants with dementia paid good attention to their art work during the sessions and that they communicated easily about their art work in most cases. Without a control group or pre-post measures of such phenomena, and without a description of the method used to analyse the data, results must be interpreted with caution but again provide anecdotal evidence that experiences of artistic education workshops can positively impact upon cognitive skills in those with dementia.

Musella et al. (2009) similarly investigated the impact of a five week visual art intervention on psychological health and communication in ten people with Alzheimer's disease. Art work was selected by art educators and eight paintings were presented to participants in each session. Results suggested improvements in global verbal communication and attention in nine individuals. It was similarly reported that caregivers rated individuals as more alert and communicative after each session. This small study neglects to report the specific measures used, if any, to measure these variables and does not give any further information about how caregivers were interviewed; these results must therefore be interpreted with caution.

MacPherson, Bird, Anderson, Davis and Blair (2009) reported findings from a six week art gallery based programme of art-viewing for people with dementia in Australia. Fifteen participants took part, some of whom lived at home and some of whom lived in residential care. Although this study did not set out to specifically measure cognitive impact, findings related to cognition were reported. Sessions were filmed and time sampling methods were used to assess individual level of engagement, revealing a high level of participant engagement throughout sessions. Qualitative data, analysed using grounded theory, was also provided from focus groups conducted with participants, carers and facilitators. Transcripts were analysed by two independent raters and a 'high level of agreement' was recorded, although how inter-rater agreement was achieved was not reported. The authors noted that all themes included in the results were expressed by two or more individuals; this would suggest the need for caution in interpretation and generalisation of these results as it cannot be assumed that this small number of individuals represent the dementia population.

The qualitative component of this study noted the impact of the intervention on memory. Carers in attendance noted partners recalling art which had been viewed in previous sessions, on subsequent gallery visits. Educators who were involved in running the

session similarly reported evidence of frequent ‘memory stimulation’, including recognition of aspects of the programme itself including previous art discussion. Participants also reported that the sessions were intellectually stimulating and that they felt a sense of achievement. However, it was reported that memory stimulation appeared context dependant, occurring specifically within the art gallery. The absence of a control group also makes it difficult to draw conclusions about the extent to which these findings are specific to an arts-based intervention group.

Camic, Tischler and Pearman (2014) in a mixed-method study compared the impact of two, eight week art gallery based interventions, one in a contemporary and one in a traditional art gallery, on people with mild to moderate dementia and their carers. The intervention included both art-viewing and art-making and was facilitated by an art educator/ artist. Twelve pairs of people with dementia and carers attended the groups and completed standardised questionnaires and pre/post interviews. Although again, this study did not focus specifically on the cognitive impact of these groups, thematic analysis discovered that both carers and dementia participants, across both types of galleries, self-reported improvements in cognitive capacities, including engagement, new learning and memory. The authors reported that identified themes were those that were relevant to all participants, thus increasing validity (Braun & Clarke, 2006). However, it may be possible that a proportion of participants also noticed further cognitive benefits, or declines, which were not reported. Despite the small sample size and lack of control group, this does provide interesting grounding for further research which gives specific consideration to the impact of such groups on individual’s cognitive capacities and suggests that the impact of such interventions may be consistent across different genres of art.

Eekelaar, Camic and Springham (2012) described an exploratory study of an art gallery based intervention for people with dementia and their family carers. This study built

on MacPherson et al. (2009) who also ran an art-gallery programme, by combining art-viewing and art-making components and by setting out to specifically measure, using content analysis, the impact of the intervention on cognitive skills. The intervention consisted of three, weekly, 90-minute sessions, involving a combination of structured art-viewing in a gallery, followed by art-making in an art studio within the gallery building. Participants were interviewed pre, post and follow-up in their homes using good quality reproductions of paintings from the gallery as visual stimuli. Sessions were audio recorded and quantitative content analysis was used to measure verbal fluency and episodic memory. It is important to note the potential impact of being assessed on both verbal fluency and episodic memory in an environment in which the participant is comfortable and at ease (home environment) compared to the gallery setting or a clinic or laboratory setting. Consistency of environment when measuring these variables is important to reduce environmental effects.

This study presented data from a short, three session, art-based intervention consisting of six pairings of dementia sufferers and their family carers. Further to this, the authors reported that only two of these pairings attended all three sessions. The small sample size and inconsistency of attendance arguably impacts on the ability to generalise from the results obtained. However, this research presented a novel way of measuring verbal fluency and episodic memory in this client group, which avoided some of the pitfalls of using standardised measures with individuals with dementia and provided initial exploratory data in an area where little research had previously been conducted. The results indicate that episodic memory improved from pre-intervention to end of intervention and that this increase was maintained at one month follow-up. Verbal fluency was measured by coding for both semantic clustering and disfluencies. Semantic clustering, a measure of semantic verbal fluency, was seen to increase from pre-interview to intervention in the gallery but this frequency dropped at the post interview stage, suggesting the effects are not maintained long-

term. Disfluencies were seen to decrease during gallery sessions but were seen to rise greatly at post-interview stage. Combining these variables, authors reported these results indicated an overall improvement in verbal fluency and this was further supported in the qualitative aspect of the study involving family carer observations. Family carer interviews, when thematically analysed, revealed themes of recalling memories and increased verbalisation. As was the case in previous studies which combined art education or viewing and art-making, the study does not separate out the two components of the intervention. Although carry over effects are probable with the two components being carried out together, it would be beneficial to analyse the components separately to ascertain any differences in the frequency of codes in each. This study provided data on a three session intervention; it is arguable that a longer term intervention may provide more opportunity for observable cognitive changes to arise.

Discussion

The review of literature of arts-based activities and cognition in those with dementia served to illuminate the early stage of research development in this area and the overall paucity of clearly interpretable results. Arts-based interventions have been shown to have wide ranging psychological benefits for this group but a consideration of the impact on cognition is largely neglected within this. With cognitive decline being the main marker of dementia this highlighted a considerable gap in research, which needs to be addressed.

The studies outlined above, reporting results relating to the impact of these interventions on cognition, were for the most part, pilot and exploratory studies. Within the studies described, several methodological limitations have been discussed that make interpretation and generalizability of the results difficult. They do, however, all indicate that the interventions evaluated have had positive effects in areas of cognitive functioning, which

provides a good rationale for continued development of this area of psychological research focusing on the impact of the arts on cognitive functioning for people with a dementia.

In the area of literary arts, two studies examined storytelling interventions (Phillips et al., 2010; Holm et al., 2004) whilst one assessed a reading programme (Billington et al., 2013). All three studies had relatively small sample sizes, from 6 to 61. All data collected involved staff ratings, which was on the most part qualitative. This allowed for in depth data to be produced but staff ratings are arguably vulnerable to bias, particularly in the case of Holm et al. (2004) where data was collected solely from the staff member running the group. The studies combined however, did produce results to suggest that both storytelling and reading may impact positively on the cognitive processes of memory, attention and communication.

The literature on performing arts examined musical interventions such as group singing and live music. Again, these studies reported results from largely small scale pilot studies with limited sample sizes. Data suggested that live music interventions produced engagement and communication (Sherratt et al., 2004; Van der Vleuten et al., 2012). Two studies (Davidson & Fedele, 2011; Camic et al., 2011) reported results of group singing programmes with limited impact on carer rated (proxy) measures of cognition, yet qualitative feedback reported improved short-term memory and new learning. A final study (Lepp et al., 2003) also suggested improved communication and re-activated memories as reported by carers involved in storytelling and rhythm and song groups.

The area of visual arts perhaps contained the most research pertaining to the cognitive impact of interventions with seven identified studies. Two of these studies (Rentz, 2002; Kinney & Rentz, 2005) focused on art-making interventions, reporting sustained attention as measured by independent observers. One study (Ullan et al., 2013) depicted results from art education workshops, collecting data from focus groups including participants, suggesting

improved attention, learning and communication. Two studies discussed art-viewing interventions (Musella et al., 2009; MacPherson et al., 2009) and two combined art-viewing and art-making (Eekelaar et al., 2012; Camic et al., 2013). All of the above purported to find a positive impact of the intervention on attention and memory. None of these studies used a control group, making it difficult to ascertain the proportion of these effects which may be specific to art-based interventions.

In line with the findings of this review, Noice, Noice and Kramer (2013) noted the paucity of quality research in this area with a suggestion of the difficulty in combining an artistic resistance of quantification with methodological rigour, although the studies employing mixed methodologies arguably sought to address this with a combination of qualitative and quantitative data. In the United States, the National Endowment for the Arts (2013) reported common deficiencies in arts intervention research to include: deficient samples, lack of control groups, poor intervention documentation, lack of consistent measurement tools and overstated conclusions. This was found to be consistent with much of the literature included in this review.

Implications for future research

Regardless of the methodological limitations, the literature base consisted of exploratory and pilot studies that arguably present a series of findings suggesting future research in this area is warranted. A particular advantage of most of these interventions was that they were not conducted in a clinical setting and most usefully provided an intervention which involved both individuals with dementia and their carers in an activity which was found to be highly enjoyable. Future research should therefore continue to examine the impact of literary, performance and visual art interventions on cognition in those with dementia, with the aim of addressing some of the methodological concerns raised in this review.

The majority of studies discussed included only people with mild to moderate dementia. A consideration of whether the impact of interventions varies depending on an individual's cognitive ability would be important for future research to address. It would also be useful for further research to continue to assess whether these interventions can be of use for people within the later stages of dementia. Van der Vleuten et al. (2012) found differences in outcomes for those with mild as compared to severe dementia, highlighting further the need for this to be a consideration. Similarly, only one of the identified studies reported information regarding whether any of the individuals participating in the art programmes were taking medication at the time. This is an important consideration, as medication, particularly that prescribed for dementia itself, can impact upon cognitive status.

Few of the examined studies specifically set out to measure the impact of the identified intervention of cognition and many report primarily qualitative data from staff or observers or data from standardised measures which have been suggested to not be specific enough to pick up subtle changes. Although qualitative data provides in-depth and detailed data about the nuances of any changes which have been experienced, it would be important for future research to consider other ways of measuring cognitive changes to be used in conjunction with qualitative data collection. The move towards this is evidenced in Eekelaar et al. (2012) who attempted to measure changes in specific areas of language and memory using content analysis.

Camic et al. (2013) acknowledged the difficulty of evaluating arts-based interventions for this client group in a way which could be sensitive to the subtle changes they may possibly produce. They recommended that future research further consider the use of video or audio analysis of sessions as used in Eekelaar et al. (2012), in order to capture these subtle changes.

One aspect of cognition that was not addressed, with the exception of Eekelaar et al. (2012), was the specific cognitive components that make up language. This is arguably an important aspect of cognition to consider given that it impacts directly on ability to socialise and is a key factor in challenging behaviour, which is often displayed as a result of an absence of other effective means of communication (Allen-Burge et al., 1999). This could usefully be considered further in future research by building on Eekelaar's work, for example, by extending the number of sessions and length of an intervention, thus providing more opportunity for verbal discourse and allowing participants to acclimatise to the groups.

Although research appears to suggest various benefits achieved from arts-based activities, this research does not provide consistent information regarding the frequency and intensity of the interventions that are required to initiate such changes. Research similarly has yet to examine the effects of such interventions over a longer time frame. Future research would usefully examine longer-term impacts of such interventions on individuals with dementia, including, establishing the persistence of such changes following the end of an intervention.

Clinical Implications

With projections suggesting that the prevalence of dementia will triple by 2050 (WHO, 2012), it becomes increasingly important for clinical psychologists and other health care providers working in dementia services to consider interventions which may not only impact positively on quality of life, but which may help to maintain or to improve, even if in the short term, cognitive capabilities of those with dementia. Therefore improving their general functioning and reducing distress while also reducing the costs of dementia care. There are no pharmacological 'cures' for dementia, only drugs that can be shown to decrease the progression of the disease for a short time. This makes focus on non-pharmacological interventions imperative.

This review has given specific focus to people with dementia, however, interventions which are useful for this group of individuals, may also generalise to individuals who do not have a dementia, but who experience age related cognitive decline.

Despite the evidence which has been provided to suggest the positive impact of the arts on dementia, dementia has been shown to be negatively related to individual's participation in cultural activities (Paillard-Borg, Wang, Winblad & Fratiglioni, 2009). Larger scale, more empirically sound studies need to be conducted to provide further evidence for the utility of arts-based interventions for individuals with dementia in order to encourage service providers to consider their utility.

Although limited in scope, research cited in this review provides preliminary support that arts-based interventions can have a positive impact on cognition in people with dementia. The current review identified studies that reported arts-based activities led to increased attention in people with dementia, suggesting that increases in attention can lead to improvements in other areas of cognition (Posner, Rothbart, Sheese & Kieras, 2008), which may reduce the deficits experienced by individuals with dementia. This was supported by a thematic analysis conducted by Eekelaar et al. (2012) that suggested the social setting of the group and its facilitation of shared experiences acted to reduce social isolation and to promote learning. On the basis of the current review, there is support to suggest that community-based arts and health interventions may have a positive impact socially, psychologically and cognitively, on those with dementia and their carers by, in part, reducing social isolation as well as encouraging the use of cognitive skills.

Applied psychologists and other mental health professionals may want to consider arts-based programmes when planning care for people with a dementia and carers. The studies discussed in this review, conducted in community-based settings suggested that

professionals working with people with dementia need to make links with local arts-based settings, whereby programmes of this kind can be collaboratively devised.

Conclusion

The current review aimed to assess literature pertaining to the impact of arts-based interventions on cognitive processes in dementia sufferers. A systematic literature search was conducted and relevant papers have been reviewed. The paucity of good quality research in this area has confirmed other authors observations of the difficulty in combining art and creative approaches with strict methodological criteria (Noice et al., 2013). All studies reviewed here, do however, suggest that arts-based interventions, can impact positively on cognitive processes, particularly attention and memory. The observations of such effects warrant further research in this area to build on the methodological rigour of such studies, enabling firmer conclusions to be made about the mechanisms underlying such change. This is necessary in order to provide more convincing evidence of the benefits of such programmes and in order for service providers to consider provision of such interventions for those with dementia and their carers.

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RHEA YOUNG BSc (Hons), MSc

THE COGNITIVE IMPACT OF ART-GALLERY INTERVENTIONS FOR PEOPLE WITH DEMENTIA.

SECTION B

The impact of art-viewing and art-making on cognition in people with dementia within a gallery setting.

WORD COUNT: 7187 (-207)

For Submission to: Psychology of Aesthetics, Creativity and the Arts

Abstract

Dementia is a progressive disease characterised by a widespread impairment of mental functioning including cognitive skills. Research has suggested that arts and health interventions can have positive effects in terms of physical and mental health in people with a dementia. The current study evaluated the impact of two, eight week, art-gallery based interventions, including art-viewing and art-making, for 13 people with dementia and their carers. Audio recordings of these sessions were transcribed and analysed using content analysis. The study sought to identify the impact of the intervention on cognition, in particular, on verbal fluency and memory. The findings suggested that on the whole, the intervention promoted increases in verbal fluency and in memory stimulation, which is consistent with previous research. Despite the methodological limitations inherent in this pilot study, the findings provide rationale for further controlled research and implications for clinical practice in encouraging clinicians to seek out links with community art gallery resources in order to facilitate the development of further interventions of this kind.

Keywords: visual arts, dementia, cognition, language, art gallery

In 2012, the number of people with a dementia worldwide was estimated to be 35.6 million. Due to the increased longevity of the population this number is projected to more than triple by 2050 (WHO, 2012). Dementia therefore poses a significant challenge for health services, with dementia care in the UK being reported to cost £23 billion per year (Alzheimer's society, 2013_b). Dementia is a progressive disease, mainly affecting older adults and is characterised by widespread impairment in mental functioning and cognitive decline accompanied by disturbances of mood, behaviour and personality (Ritchie & Lovestone, 2002; NICE, 2012). Symptoms may consist of; declining memory, difficulty in concentrating, poor sense of time and place, difficulty with speech production and comprehension and difficulty in completing simple tasks.

Language impairment is an early sign of dementia and can significantly affect functioning. A meta-analysis by Henry, Crawford and Phillips (2004) found both phonemic and semantic verbal fluency to be significantly impaired in those with dementia. Difficulties with communication can also contribute to behaviour difficulties (Potkins et al., 2003). Despite the impact of dementia on cognitive skills, Cognitive Stimulation Therapy is to date the only non-pharmacological recommended intervention (NICE, 2012). It is therefore important for research to consider alternative interventions which can realistically be provided and which would act to improve the quality of life of individuals with dementia. The Department of Health recommend that strategies for engagement in the community and access to social activity are prioritised for this client group (DoH, 2009).

Kitwood (1997) emphasised the need to provide high quality person-centred care to dementia sufferers and to include within this a consideration of social and psychological factors impacting on the disease. Kitwood describes twelve components of 'positive person care' which, include; creation, whereby opportunities to be creative are promoted; play,

whereby individuals are encouraged to express themselves; and facilitation whereby individuals are enabled to partake in activities they would otherwise not be able to. One emerging area of research, which arguably falls in line with Kitwood's person centred approach is that of conducting arts-based activities with both people with dementia and carers.

Arts and Health

Arts and health can be defined as "arts-based activities that aim to improve individual and community health and healthcare delivery, and which enhance the healthcare environment by providing artwork or performances" (Arts Council England, 2007, p.5). Research suggests a number of benefits can arise from arts and health programmes. Fischer and Specht (1999) found that artistic creative activity facilitates successful ageing in a number of ways, including facilitating a sense of competence, purpose and growth. Cohen et al. (2006) similarly found improvements in physical health, mental health and social functioning, suggesting the benefits of arts and health activities can be widespread. Art activities which have been shown to positively impact the well-being of dementia sufferers include; poetry (Gregory, 2011), music (Clément, Tonini, Khatir, Schiaratura & Samson, 2012); theatre and drama (Noice, Noice & Staines, 2004) and visual art (Kinney & Rentz, 2005).

Visual Art

In particular, research has looked at the impact of visual art on dementia. Arnheim (1974) suggests that art-viewing may stimulate visual as opposed to verbal thinking processes and therefore this may be beneficial where language impairment is present. In line with this, Halpern, Ly, Elkin- Frankston and O'Connor (2007) suggest those with dementia should be encouraged to take part in art appreciation activities such as gallery viewing as they found that aesthetic preferences can be preserved despite cognitive decline.

MacPherson, Bird, Anderson, Davis and Blair (2009) found discussion of artwork in a gallery engaged those with dementia and both they and family carers wanted it to continue. Rosenberg (2009) reported increases in self-esteem following art-viewing, as well as improved mood in both dementia and carer groups. Furthermore, a study by Ullan et al., (2013) found that those who took part in an art educational programme, showed commitment to and satisfaction with the creative activities of the programme. Increases in attention (Kinney & Rentz, 2005), problem solving-skills (Fischer & Specht, 1999), communication (Ullan et al., 2013) and other cognitive skills have been noted, although little research has focussed specifically on the impact on cognition.

Roberts, Camic and Springham (2011) used grounded theory to understand art-viewing in a non-clinical environment in individuals with mental health problems and their carers and proposed art-viewing to be a multi-dimensional experience including psychological processes of mentalising, reflexivity and internalising. This study also proposed that art-viewing may be enhanced when paired with other activities such as art-making.

A study by Eekelaar, Camic and Springham (2012) went on to combine art-making and art-viewing in one intervention for those with dementia and carers. This was one of the first studies to formally consider the cognitive impact of such an intervention. The study found, overall, that verbal fluency improved over the course of three sessions, although the results were somewhat ambiguous. Specifically, semantic clustering increased although verbal disfluencies decreased only slightly. Due to the ambiguous findings reported in this study, it was suggested that further research in this area be conducted. Data was not obtained during the art-viewing stage and it was recommended that future research address this omission by collecting data during art-viewing, as well as including additional sessions in order to examine a more intensive intervention. Roberts et al. (2011) suggested that

interventions of this kind have the potential to be used more widely due to the fact they are community rather than clinically based and low cost.

The current study

The current study aimed to build on an exploratory study conducted by Eekelaar et al. (2012) and to address some of the methodological limitations mentioned above with the aim of picking up subtle nuances and changes that occur, as suggested by Camic, Tischler and Pearman (2014). Data was drawn from two similar groups consisting of people with a dementia and their carers. The intervention involved both art-viewing and art-making, in an art gallery setting. Data used in this study had been previously audio recorded; it was analysed in the current study using content analysis and coded for verbal fluency, memory and other relevant factors that allowed a comparison of the data from the art-viewing and the art-making components. As language function is identified as an area significantly affected by dementia, it was hoped that this study would help to further investigate the utility and impact of community-based art-viewing and art-making interventions.

Methodology

Participants

Data was drawn from two similarly run groups; the first group consisted of five individuals with dementia (four female) and their carers. The second group consisted of eight people with dementia (seven females). All participants were white British. The mean age of those with dementia in group one was 78, (range, 60-94) in group two the mean age of those with dementia was, 84 (range, 73-91). Participants with dementia were accompanied by either a family or professional carer who knew them well. Inclusion criteria stipulated persons with dementia to be aged 60 or over and in the mild-moderate range of dementia as assessed by a Mini Mental State Examination (MMSE) score between 10 and 24 (MMSE, Folstein, Folstein & McHugh, 1975). Dementia sub-type was not collected; previous

research by Pasquier, Lebert, Grymonprez & Petit (1995) found that dementia sufferers had significantly lower verbal fluency than controls, although there were no significant differences in verbal fluency in people with different types of dementia, indicating that any impact on verbal fluency may be consistent across the subtypes of dementia. Participants with significant medical or psychiatric illness were excluded from the sample.

Carers were required to be over the age of 18 and willing to be designated as a consultee, as defined by NHS research guidance, who were prepared to remove participants from the study at any point should participation not be considered to be in their best interests. Carers with debilitating physical or psychiatric illnesses were also excluded from the sample.

Ethics

Ethical approval was gained from Canterbury Christ Church University, Salomons Campus Ethics Panel in July 2011 for group one and extended in April 2012, for group two (Appendix D). Permission was given in writing to the author for the use of this data in the current study (Appendix E). Data was kept confidential at all times.

Design

The current exploratory study analysed previously collected audio-recorded data and built on an innovative design used by Eekelaar et al. (2012) which involved using content analysis to measure verbal fluency and episodic memory in individuals with dementia during art-viewing and art-making activity in a gallery. Data in the present study had been collected longitudinally over eight weeks and did not involve a control group.

Procedure

Data used in this study had been previously collected according to the following procedures (see appendices F-J): after obtaining ethical approval, participants were recruited using convenience sampling methods, via gallery brochure adverts, gallery databases, contacts at residential care homes and charities and a database obtained from a stakeholder

event which included people who expressed an interest in the intervention. Those expressing interest were sent further information and consent forms. For those where capacity to participate in the groups was questioned, consent was gained via carers.

Two, weekly, eight-week groups consisting of two-hour long sessions were facilitated by an art educator who was knowledgeable about the art in this particular gallery and received dementia awareness training prior to running the groups. Groups were co-facilitated by a lead researcher/psychologist working on the project and were also attended by a research student. See Appendix K for group aims.

The study was set in a contemporary art gallery during normal opening hours and each week involved discussion of a different piece of art from within the gallery. Materials provided during the art-making portion of the group included, paint, pencils, block printing materials and charcoal. Participants were each provided with an art sketchbook and were encouraged to use to make notes and draw. These were collected at the end of each session but were available to take home following the final session.

Structure of Sessions

1. Introduction and discussion of objects: Participants were greeted in the studio and refreshments provided. In weeks two to eight they were invited to bring with them "interesting objects" for the group to discuss. The group passed around the objects and discussed them in terms of their personal relevance, aesthetic features and function. Following discussion of these objects, the groups moved to the art gallery.
2. Structured art-viewing: In the art gallery, participants were given time to observe a specific piece of art work. Following this, the facilitator led a discussion about this piece of art. The facilitator prompted discussions by asking simple questions about the art work such as: 'how would you describe this art work in one word' and 'how

does this piece make you feel' (Appendix L). Following this discussion, participants moved back to the studio.

3. Art-making: Upon arrival back in the studio, refreshments were made. Participants were provided with various materials and encouraged to use different art mediums such as; collage, clay, paints and fabric. The facilitator demonstrated new techniques to participants and was available throughout the art-making sessions to assist them, making suggestions about what they may wish to produce where necessary. At the end of each art-making session, one participant was encouraged to volunteer to curate the art which had been made and display this for discussion. The group as a whole then discussed the art they had made and asked questions about this.

Analysis

Audio recordings of both art-making and art-viewing sections of the sessions were transcribed verbatim and analysed using quantitative content analysis (Krippendorff, 2004). Holsti (1969) defined content analysis as a "technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti, 1969, p. 14). Weber (1990) cites a benefit of content analysis, being that, in contrast to the completion of standardised measures or direct interviews with participants, those communicating the message are unaware of the analysis, reducing the possibility of the measurement confounding the data. Content analysis is also seen to be useful due to its ability to allow quantitative exploration of qualitative data, adding to the ability to compare and interpret this data (Kripendorff, 2004).

Due to failed audio recordings, some sessions were not available for analysis. In total, data was available from 10 out of 16 sessions. Data from the two groups were combined due to the similar format of both groups, including facilitators being consistent

across groups, it was anticipated that participants' experiences of the groups would be similar.

An adapted version of the codebook developed in a previous exploratory study of similar sessions by Eekelaar et al. (2012) was used (Appendix M), which provided a clear coding frame. This approach to coding falls in line with a technique recommended by Neuendorf (2002) that uses relevant past research to identify relevant text units. Another approach recommended by Neuendorf also considers the use of an emergent process, whereby codes which emerge during analysis are also noted. This technique was also used, consequently leading to minor adaptations of the previous codebook. Transcripts were read and re-read to further familiarise the researcher with the data, followed by the application of coding categories. Data were analysed on a group rather than individual level, due to the relatively small sample size and difficulty in retrospectively identifying individual participants.

For the purpose of analysis, data was combined into two groups of three sessions (sessions, 1, 2 and 3, and sessions 6, 7 and 8) and one group of two sessions (session 4 and 5). The rationale for combining data in this way was built on the previous study by Eekelaar et al. (2012) who found inconsistent change occurring over three sessions, indicating that more than three sessions may be necessary for change to be observed. Combining data also allowed clearer graphical representation and helped to control for variation between individual sessions by providing an average of two or three sessions at each stage.

For each code, the percentage of participant speech coded within each session was calculated. Due to the lack of individual data and the small sample size, further statistical analysis was not possible. Data has therefore been presented graphically to allow assessment of patterns over time. As well as graphical representation of the combined data, graphs

depicting data from all 8 sessions have also been provided in order to demonstrate the variation within each stage.

Reliability

Weber (1990) notes that in order "to make valid inferences from the text, it is important that the classification procedure be reliable in the sense of being consistent: "different people should code the same text in the same way" (Weber, 1990, pp. 12). In order to determine reliability of the codebook, all initial coding was completed by the author and inter-rater reliability was then calculated by a second coder for 20% of the data (Appendix N). Both coders were familiar with the codebook and coding system used. Inter-rater agreement was calculated using Cohen's kappa coefficient and determined to be 0.97 This indicates an excellent level of agreement compared with a recommended acceptable level of agreement of 0.8 (Landis and Koch, 1977).

Results

Disfluencies

Data was coded as disfluent if a sentence or segment of speech contained false starts, revisions, prolongations, hesitations, and/or repetitions. In the first three sessions (stage one) the percentage of disfluencies in the sessions as a whole was 14.75%. Across sessions 4 and 5, this fell to 13.89% and in the final three sessions, this percentage rose again slightly to 14.34%, which represents a decrease of 0.41% from the first group of sessions to the last group.

Data was then separated out to allow consideration of the art-making and art-viewing components of the intervention separately. In the beginning sessions, within the art-viewing component, disfluencies were 13.73%, this increased to 14.71% in sessions 4-5 and further increased to 15.54% in the final three sessions. Therefore, there was an overall increase of

1.81% from the initial sessions to the final sessions. In the art-making component, in stage one, disfluencies occurred 16.54% of the time, decreasing to 13.88% in stage two and further decreasing to 13.37% across stage three. Therefore, in the art-making component, an overall decrease in disfluencies of 1.79% was observed.

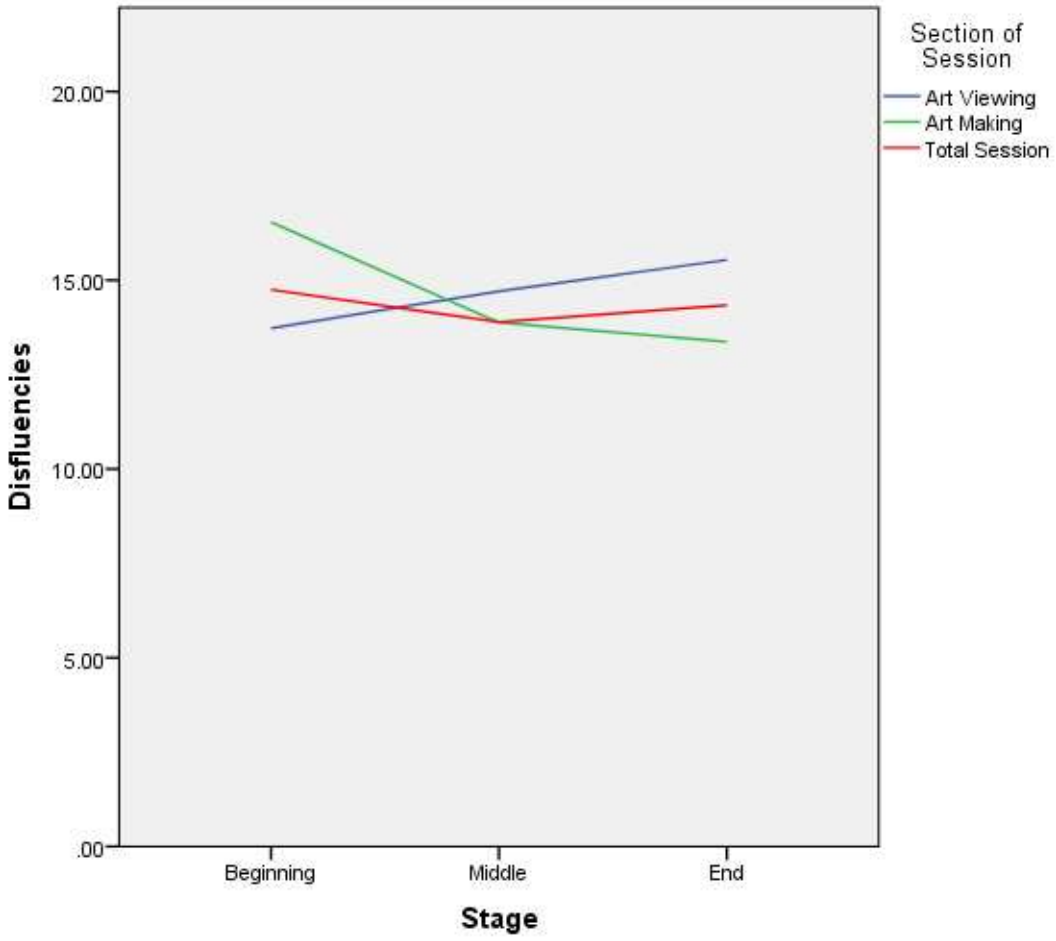

Figure 1. Disfluencies across three time points.

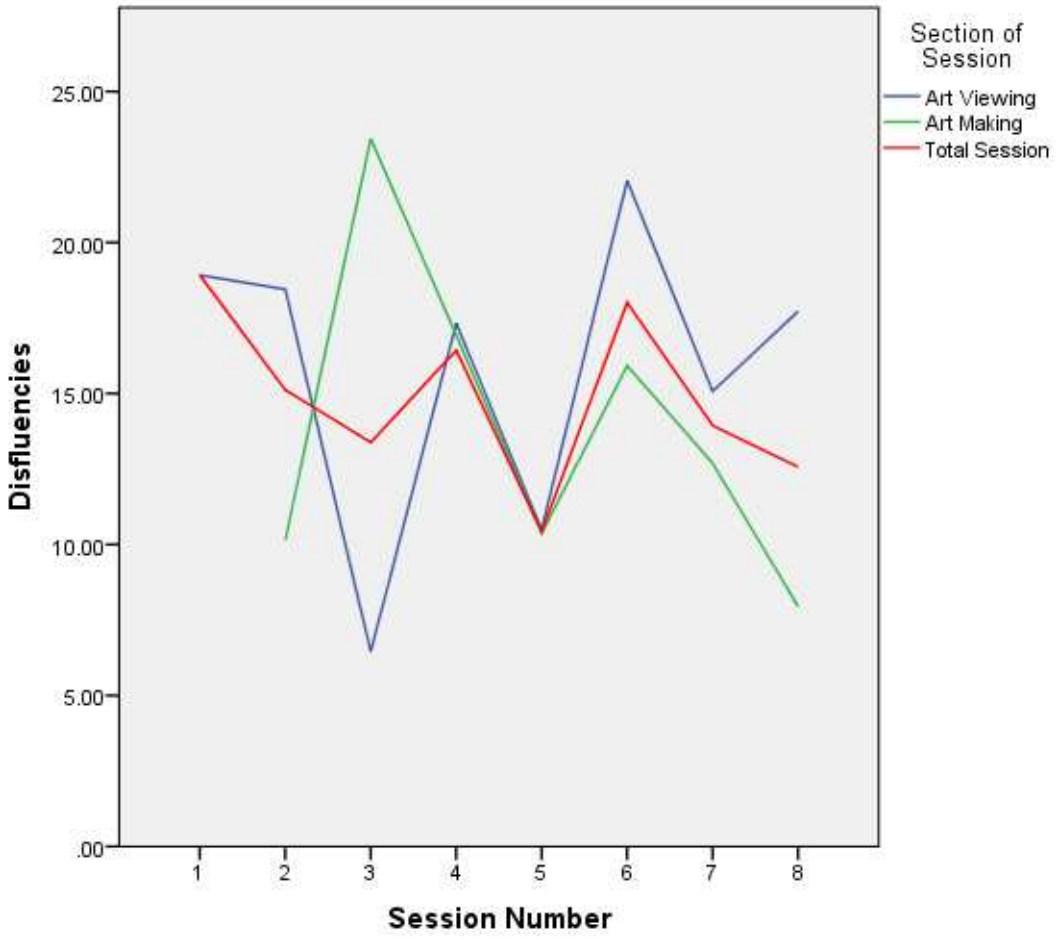

Figure 2. Disfluencies across each of the 8 sessions.

Semantic clustering

Data was coded as semantic clustering when two or more semantically linked words or concepts were used with a maximum of one word separating them. Across stage one, 24.18% of the data was coded as semantic clustering, this rose to 26.32% in stage two and rose again to 27.75 in stage three, representing an overall increase of 3.57%.

When art-making and art-viewing components were separated, for art-viewing in stage one, semantic clustering was 27.95%, increasing to 32.16% in stage two and decreasing to 29.34% in the final stage, representing an overall increase of 1.39%. In the art-making components, sematic clustering was 21.85% across stage one, 19.94% in the stage two and 26.46% in the final stage, representing an overall increase of 4.61%.

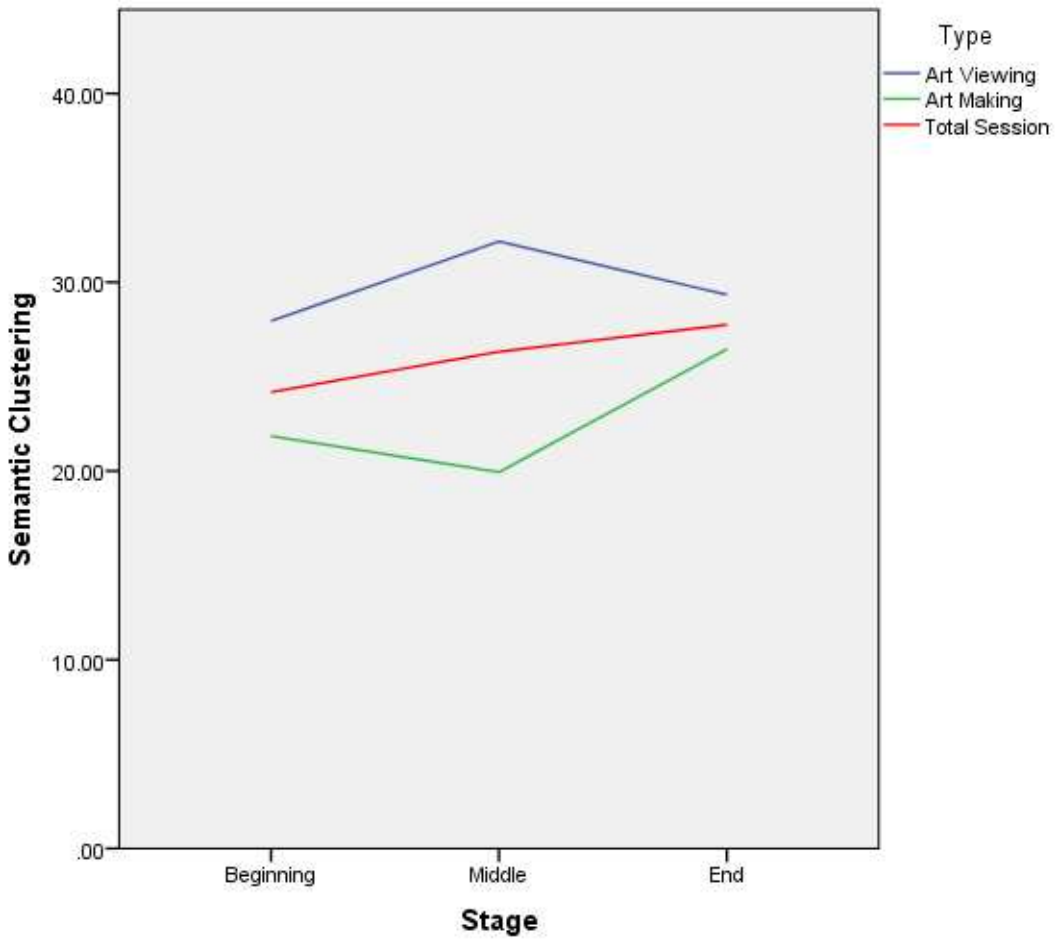

Figure 3. Semantic clustering across three time points.

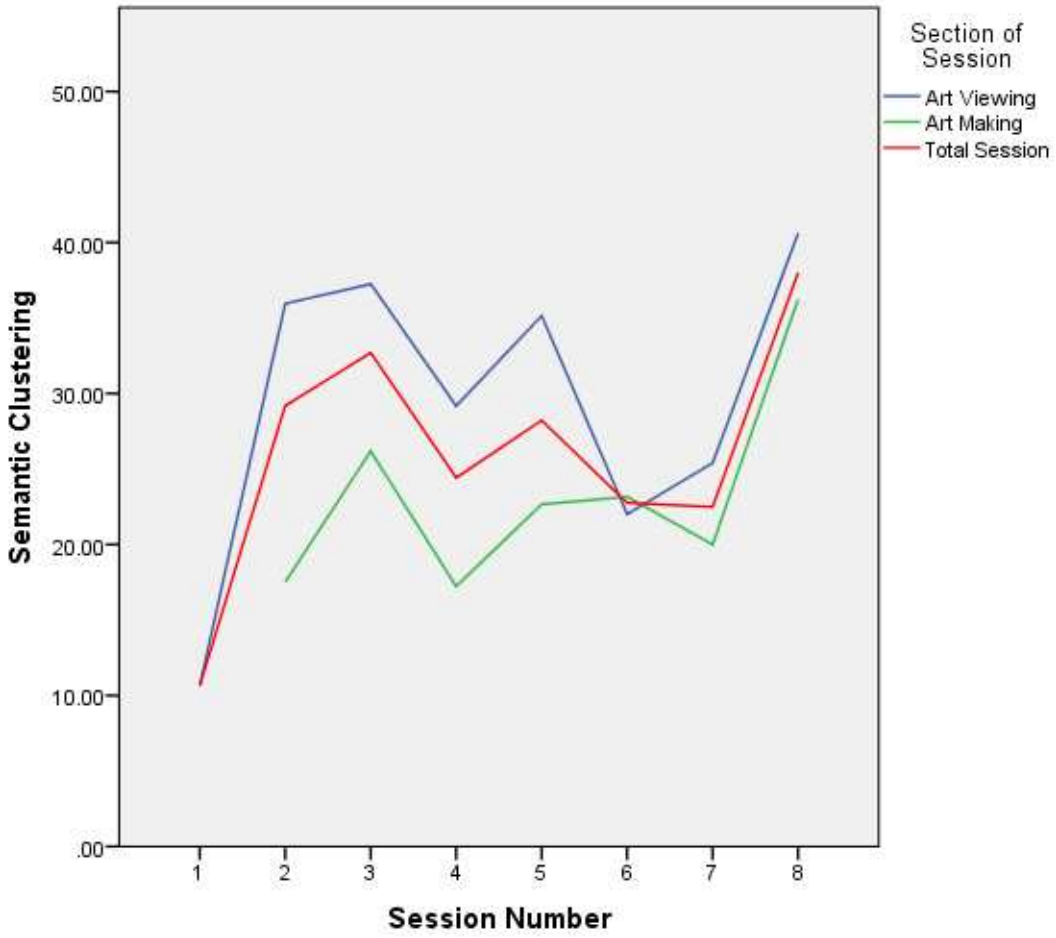

Figure 4. Semantic clustering across each of the 8 sessions.

Lifetime memory

Data was coded as lifetime memory if it made reference to a memory about the individual with dementia's life. Across stage one 2.35% of speech made reference to lifetime memories, in stage two, this rose to 4.96%, further rising to 6.62% in stage three. This indicates an increase of 4.27% from the early sessions to the final sessions.

When looking at data from the art-viewing component only, in stage one, 7.70% of speech was coded as lifetime memory, this decreased slightly to 6.50% in stage two and increased again to 11.98% in stage three. This represents an increase of 4.28% in total. In the art-making component, total data coded as lifetime memory in stage one was 0%, increasing to 2.18% in stage two and increasing again to 2.44% in stage three.

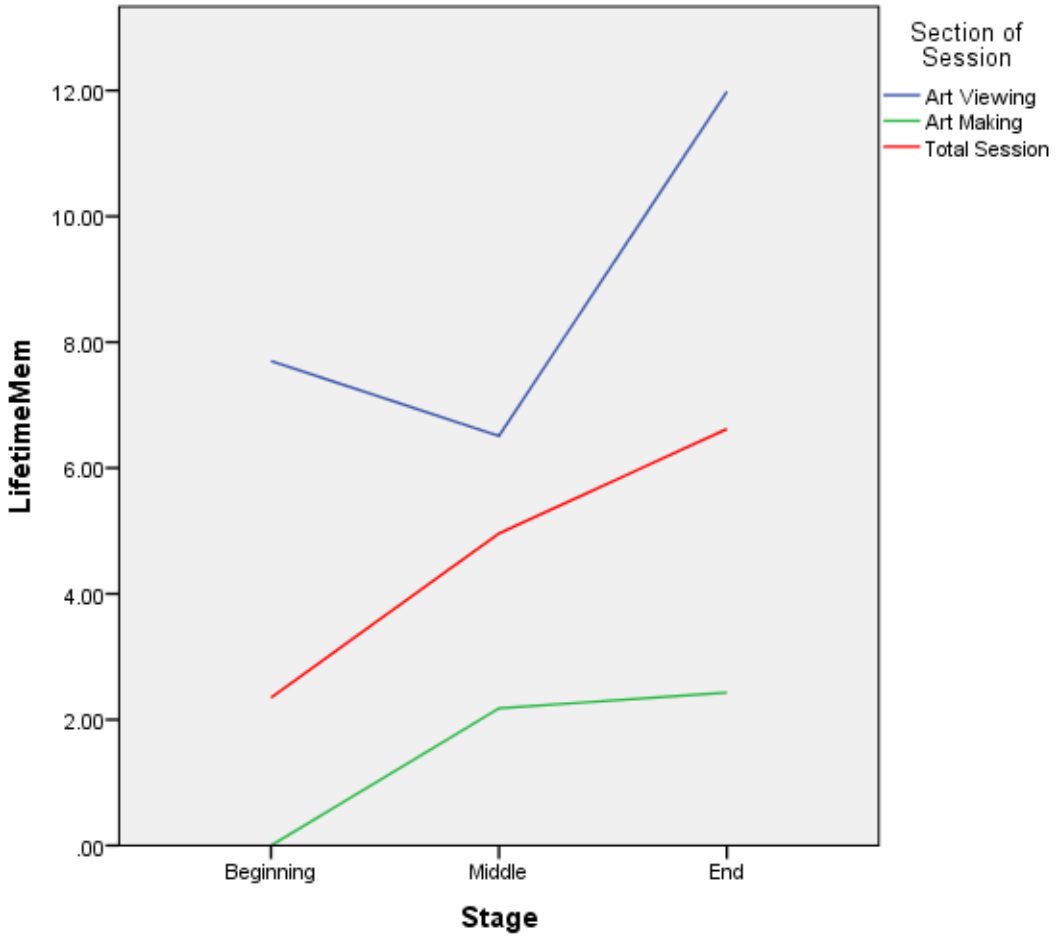

Figure 5. Lifetime memory across three time points.

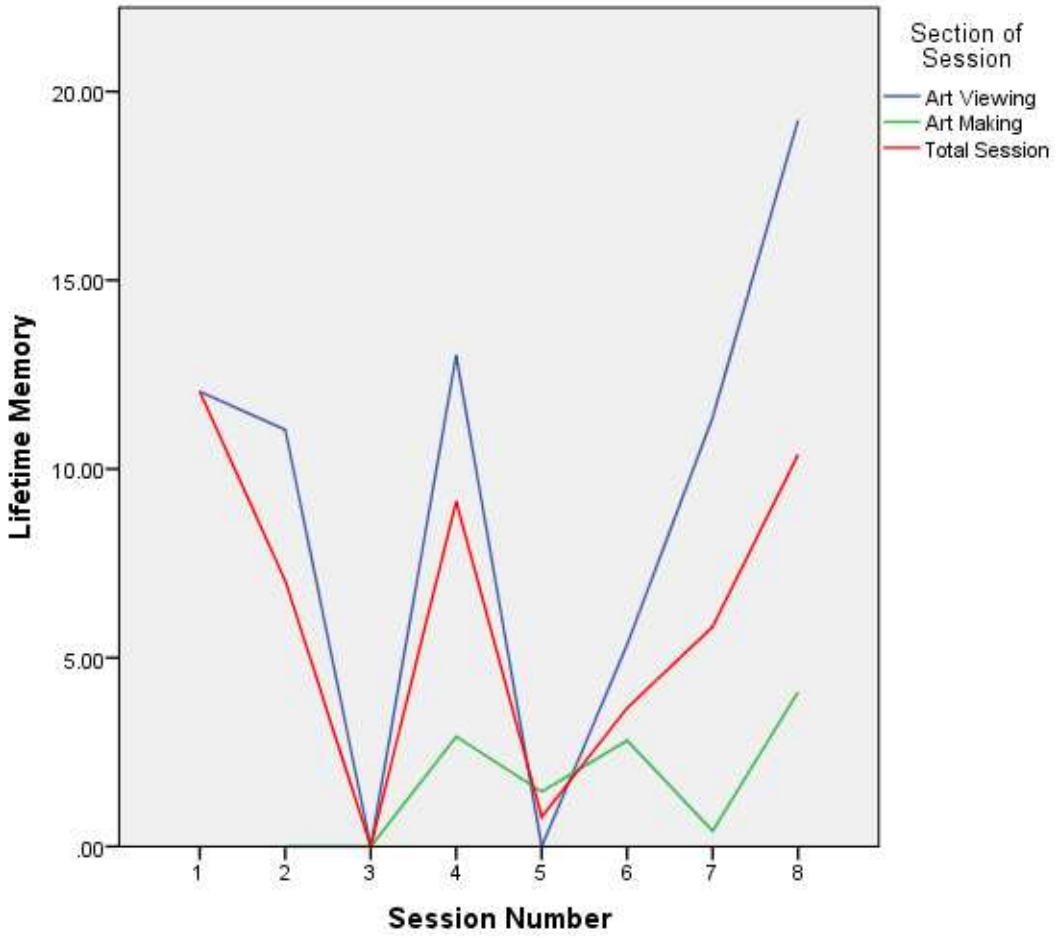

Figure 6. Lifetime memory across each of the 8 sessions.

Memory of previous sessions

Data was coded as memory of a previous session where it made reference to any aspect of previous art-making or art-viewing. Across stage one (only session 2 and 3 are relevant), 0.23% of the data was coded as memory of a previous session. In stage two, 0.31% of data referenced a memory of a previous session, this rose to 0.79% in the final stage, an overall increase of 0.56%. In the art-viewing component, 0.38% of data was coded as memory of a previous session in stage one, 0.58% in stage two and 1.51% in the final stage, an overall increase of 1.13%. In the art-making component of the intervention, in stage one and two, 0% of the data was coded as memory of a previous session, this rose to 0.62 in the final stage.

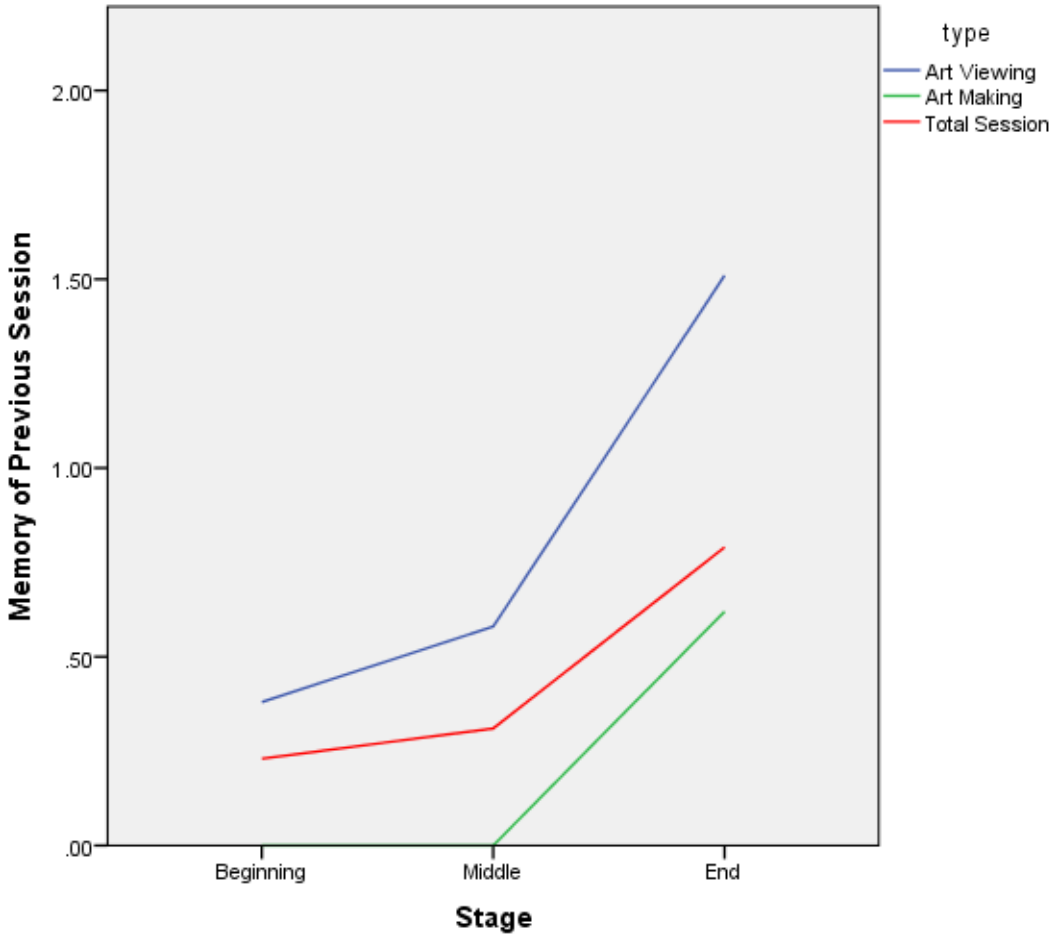

Figure 7. Memory of previous sessions across three time points.

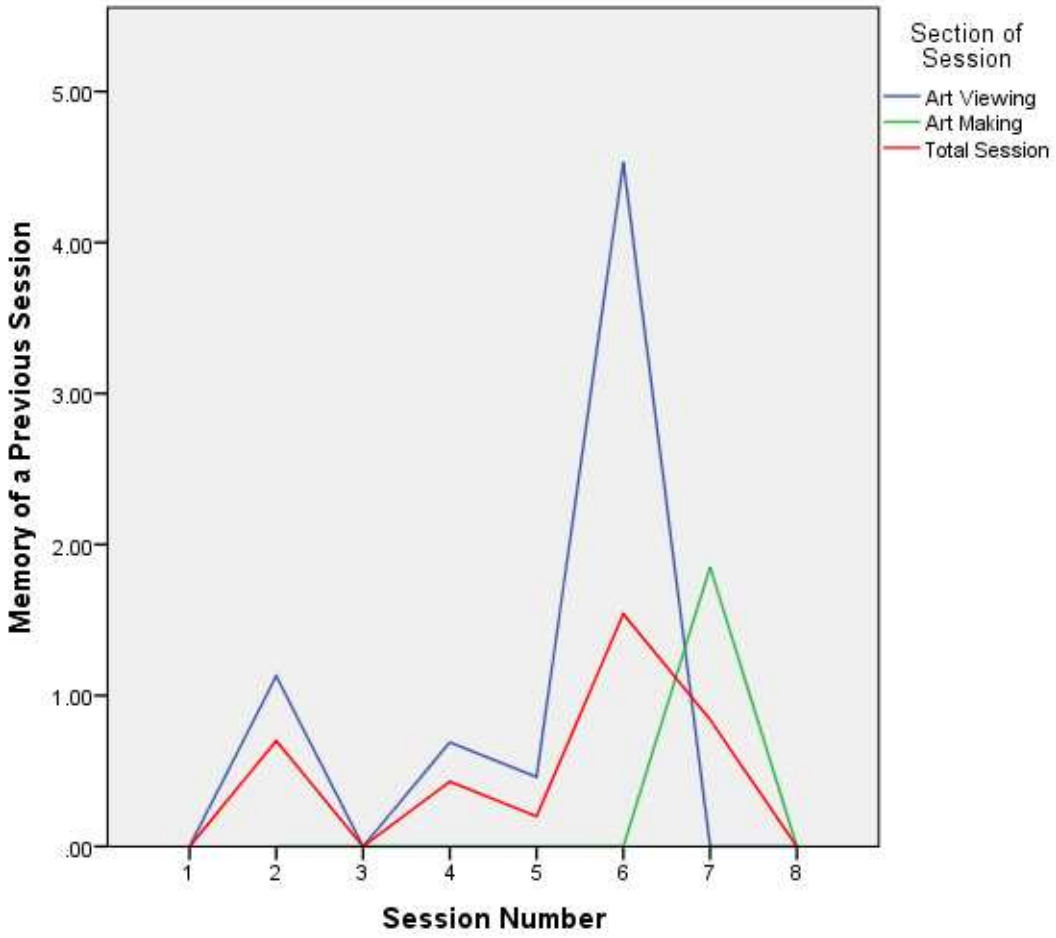

Figure 8. Memory of previous sessions across each of the 7 sessions

Factual observations of art

Data was included under this code when participants made observations regarding the physical properties of art work, either work presented in the gallery or work completed in the studio. In stage one, 6.27% of speech included reference to factual observation of art, in stage two this rose to 7.73% and in the final session this fell to 6.44%, a slight overall increase of 0.17%. In the art-viewing component, in stage one, 11.33% of speech was factual observations. This rose to 13.74% in the middle stage and fell to 11.63% in the last stage, an overall increase of 0.3%. In the art-making component (stage one), 4.58% of data was coded as factual observation, in stage two this was 2.18%, increasing to 3.42% in the final stage.

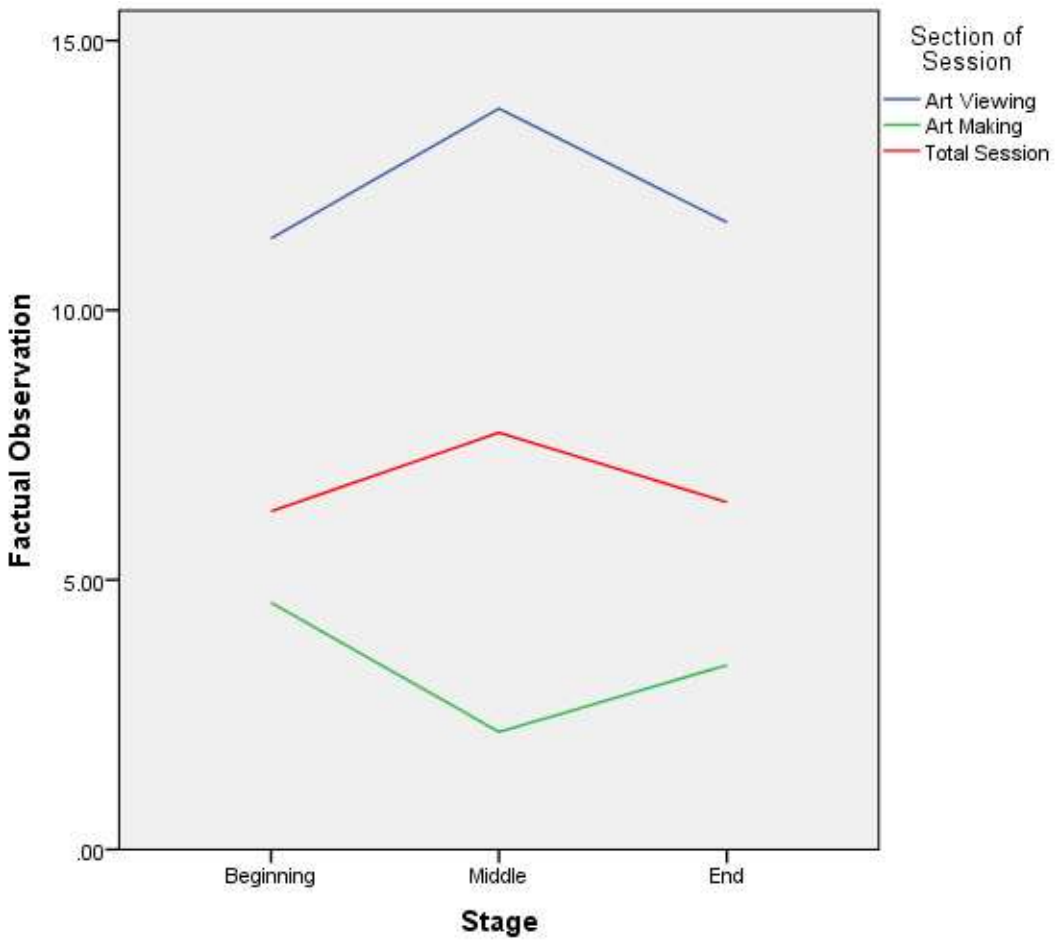

Figure 9. Factual observations across three time points

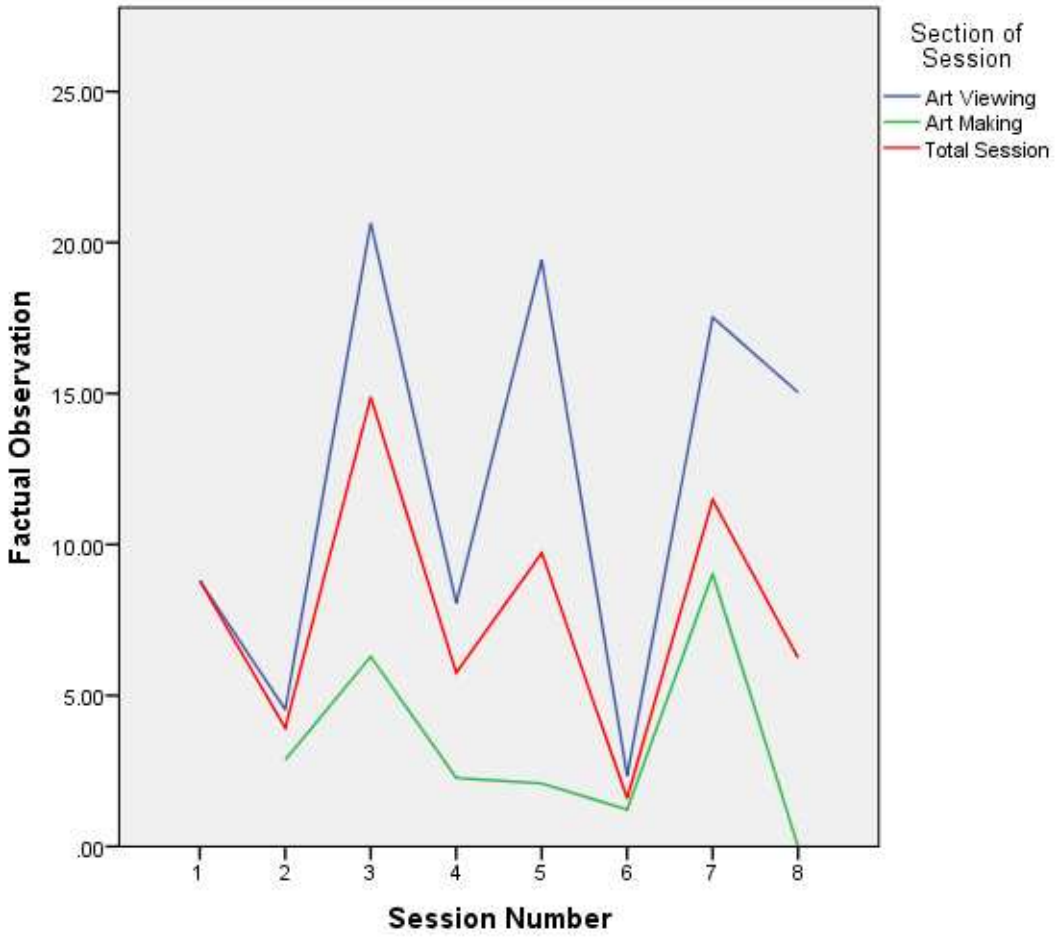

Figure 10. Factual observations across all 8 sessions.

Opinion of art

When participants provided their own judgement of a piece of art work this was coded as 'opinion of art'. Across the first stage, 11.93% of speech contained opinions of art work. This rose to 17.32% in the second stage and fell to 10.23% in the final stage, an overall decrease of 1.7%. In the art-viewing component of the intervention specifically, 16.05% of speech in stage one contained opinions or art, rising to 17.23% in stage two and to falling 13.67% across the final stage, an overall decrease of 2.38%. In the art-making segments of the intervention, across stage one, 5.29% of the data was coded as opinion of art, rising to 18.49% in stage two and falling to 8.27% in the final stage.

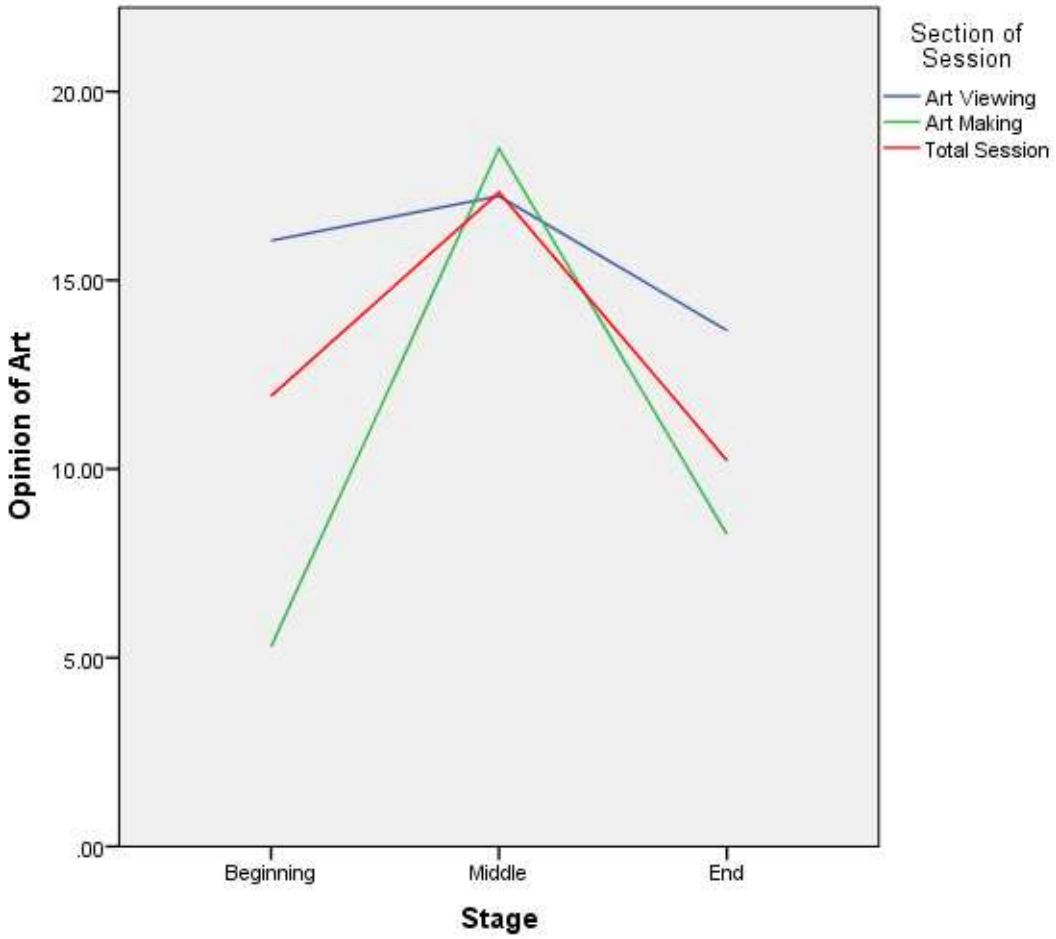

Figure 11. Opinion of art across three time points.

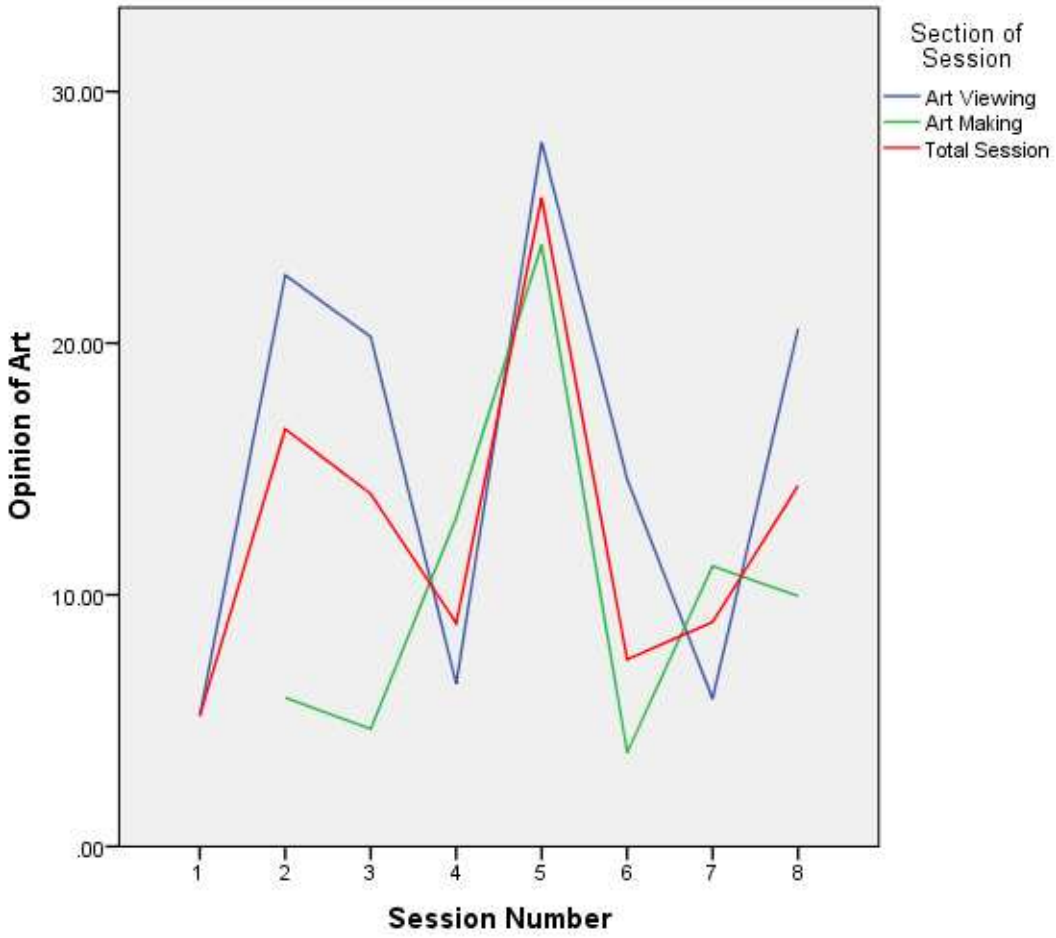

Figure 12. Opinion of art across all 8 sessions.

Sharing factual knowledge

This code was used where participants shared factual knowledge with others in the group. Across stage one, 1.49% of data was coded as sharing factual knowledge. This rose to 1.68% across stage two and was 1.74% across stage three, an overall increase of 0.25%. In the art-viewing segments of the sessions, across stage one, 5.64% of data was coded as sharing factual knowledge, this dropped to 2.38% in stage two and rose again to 2.58% in stage three, an overall decrease of 3.06%. In the art-making segment, 0% factual knowledge was shared in the initial three sessions, rising to 0.88% in the middle stage and rising further to 1.14% in the stage.

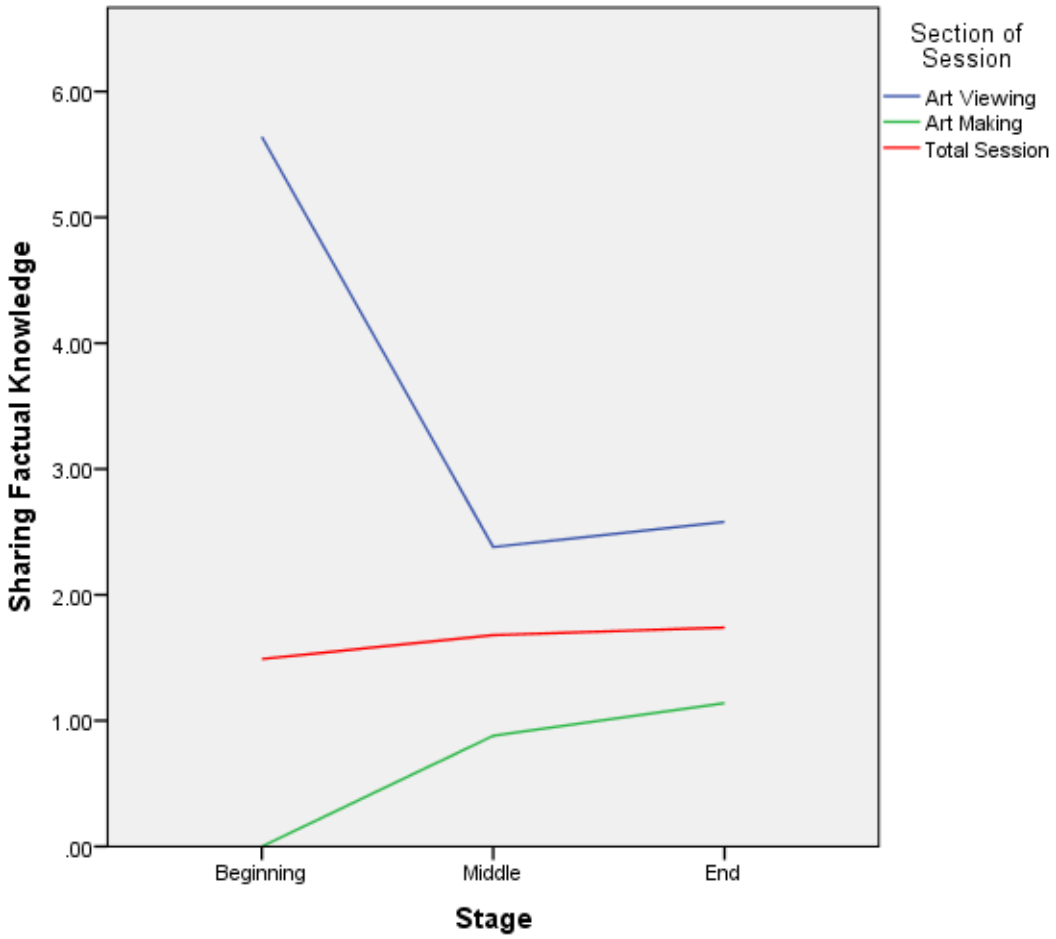

Figure 13. Sharing factual knowledge across three time points.

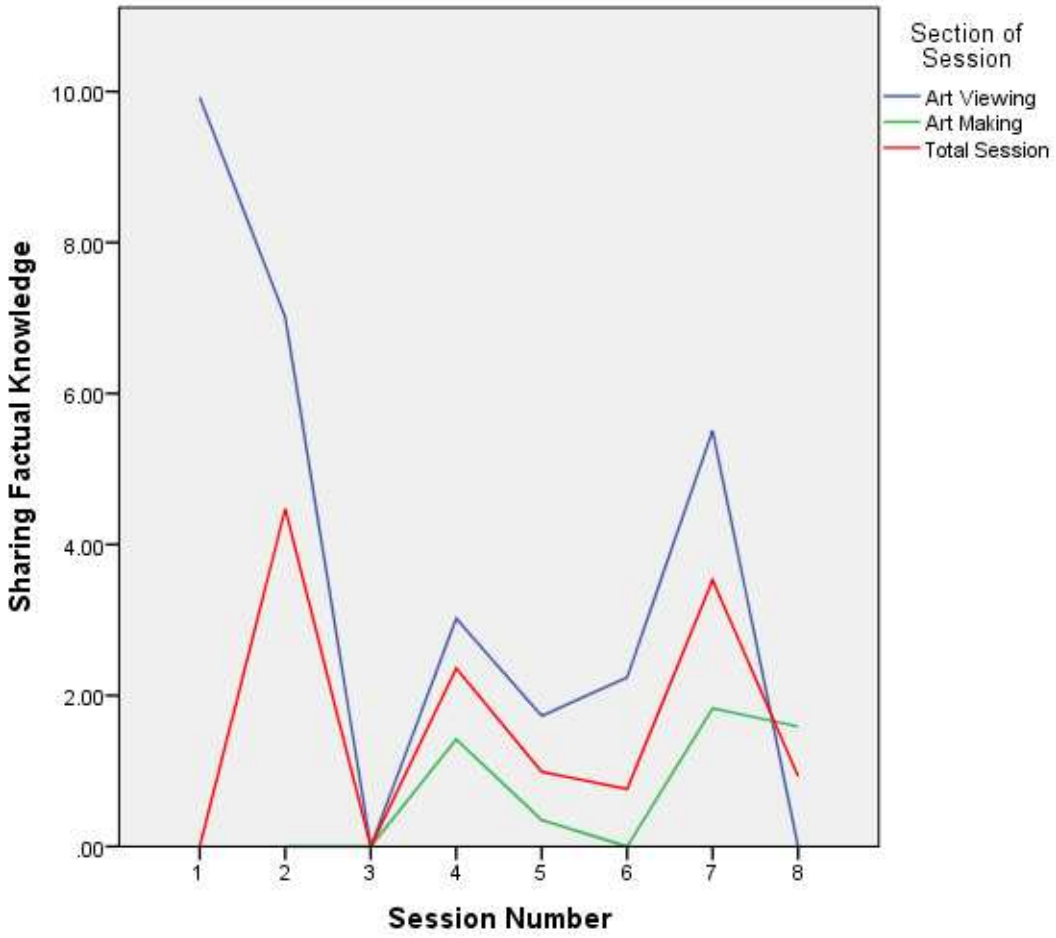

Figure 14. Sharing factual knowledge across all 8 sessions.

Personal descriptive information

Where participants shared personal information about themselves, this code was applied. Across stage one, 0.36% of data was coded as providing descriptive information, this fell to 0.14% in the middle stage and rose to 1.15% in the final stage, an overall increase of 0.79%. In stage one of the art-viewing segments, 0.57% was coded as personal descriptive information, falling to 0.18% in the middle sessions and was 0.63% in the final three sessions, an overall increase of 0.06%. In the initial three art-making sessions 0% of data was coded as personal descriptive information, in stage two 0.09% was coded and this rose to 1.45% in the final stage.

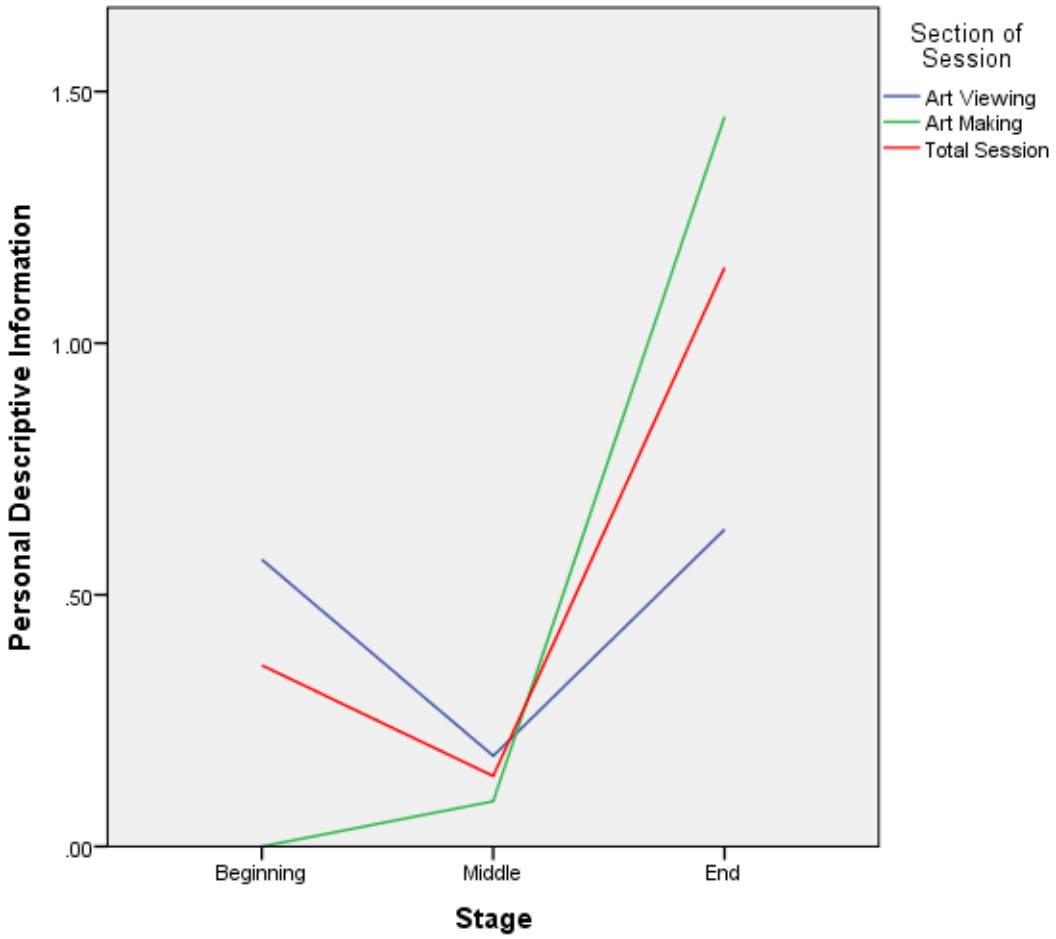

Figure 15. Personal descriptive information across three time points.

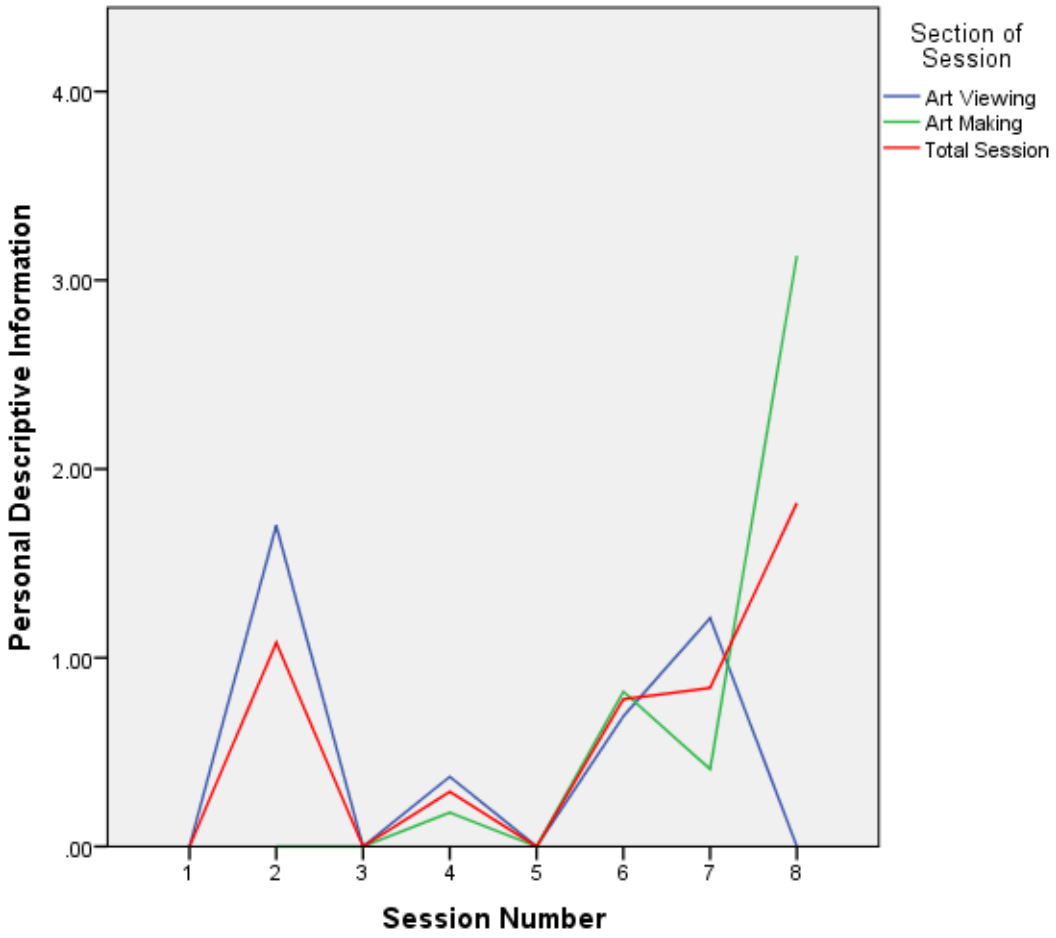

Figure 16. Personal descriptive information across 8 sessions.

Emotional reaction to group

This code was applied where participants made statements containing an emotional reaction to the group. Across the first stage, 0% of data contained an emotional reaction to the group, this rose to 0.40% in stage two and rose further to 6.40% in stage three, representing a considerable increase of 6.40%. In the art-viewing segments, across stage one, this code was not observed, however, it occurred 0.15% in stage two and 3.03% across the final stage. In the art-making segments, across the initial sessions 0% of the data was coded as including an emotional reaction to the group, this rose to 0.73% in the middle sessions and rose further to 9.09% across the final three sessions.

Some particularly emotive statements relating to participants experiences of the groups were provided in later sessions:

*'Well I suppose it's a bit too e*motional to describe it as life-saving but we are sort of *bordering up that area'* (Participant with Dementia)

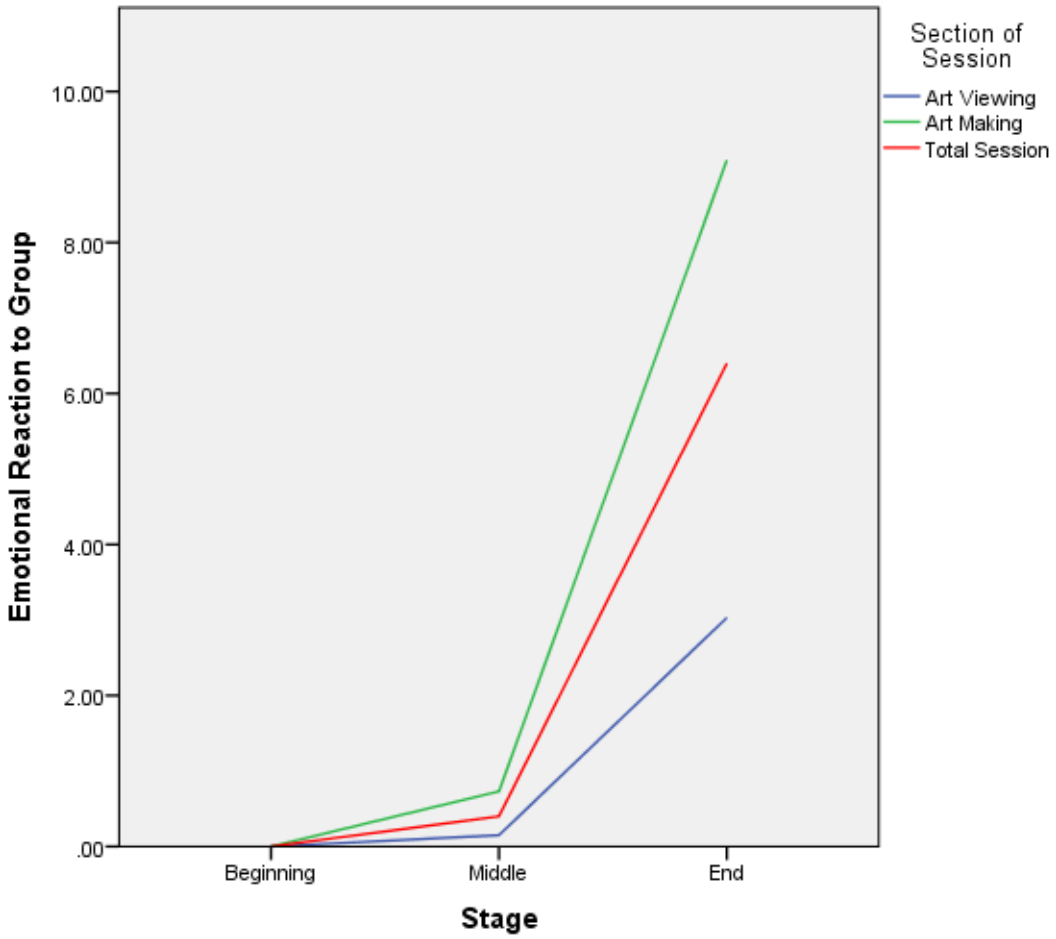

Figure 17. Emotional reaction to group across three time points.

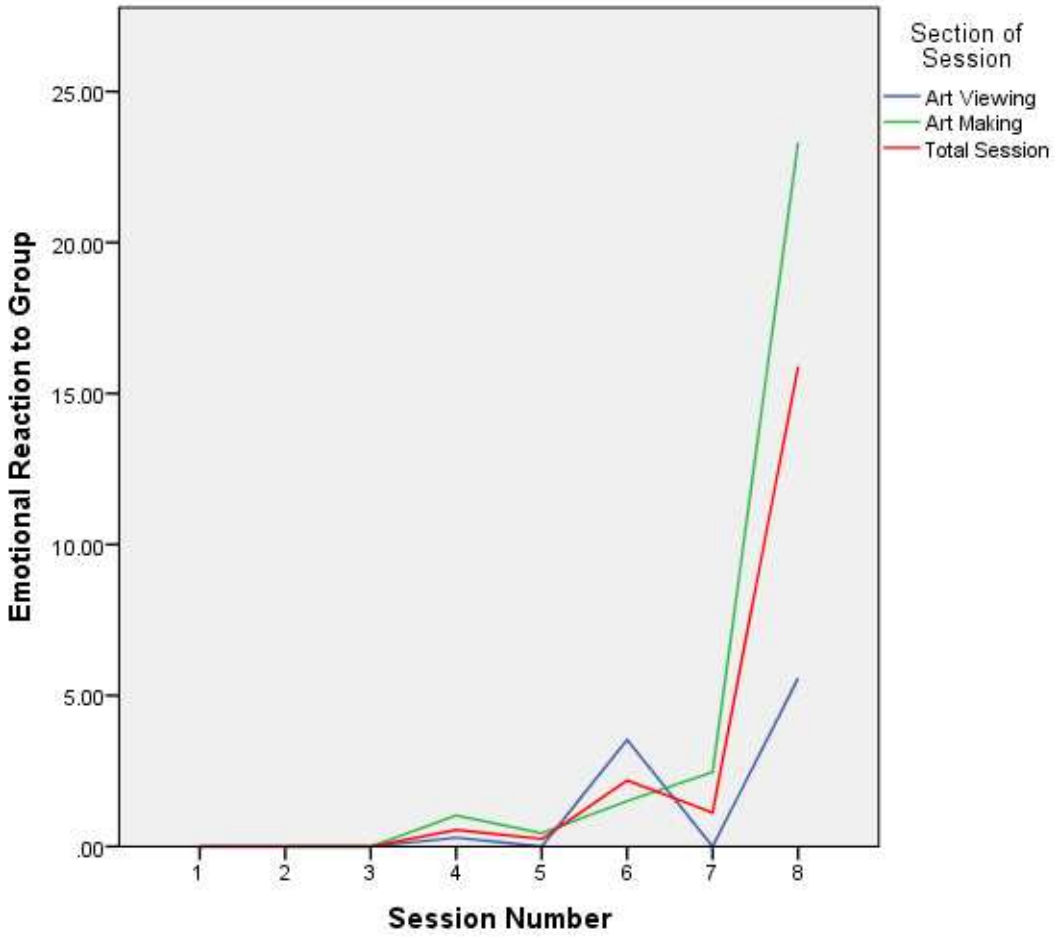

Figure 18. Emotional reaction to group across 8 sessions.

Emotional Reaction to Art

Where participants made statements containing an emotional response to a piece of art work, either displayed in the gallery or which had been produced in the studio session. Across stage one 2.46% of the data was coded as including an emotional reaction to art work, in the middle stage this fell to 1.06% and in the final stage was 1.21%, an overall decrease of 1.25%. In the art-viewing segments, across stage one, this code was applied to 3.53% of the data, this fell to 1.79% in the middle group of sessions and was 1.90% in the final group of sessions. This represents an overall decrease of 1.63%. In the art-making segments, across stage one, this code was applied to 0.69%, this fell to 0.39% in stage two and 0.76% was coded in the final stage, an overall increase of 0.07%.

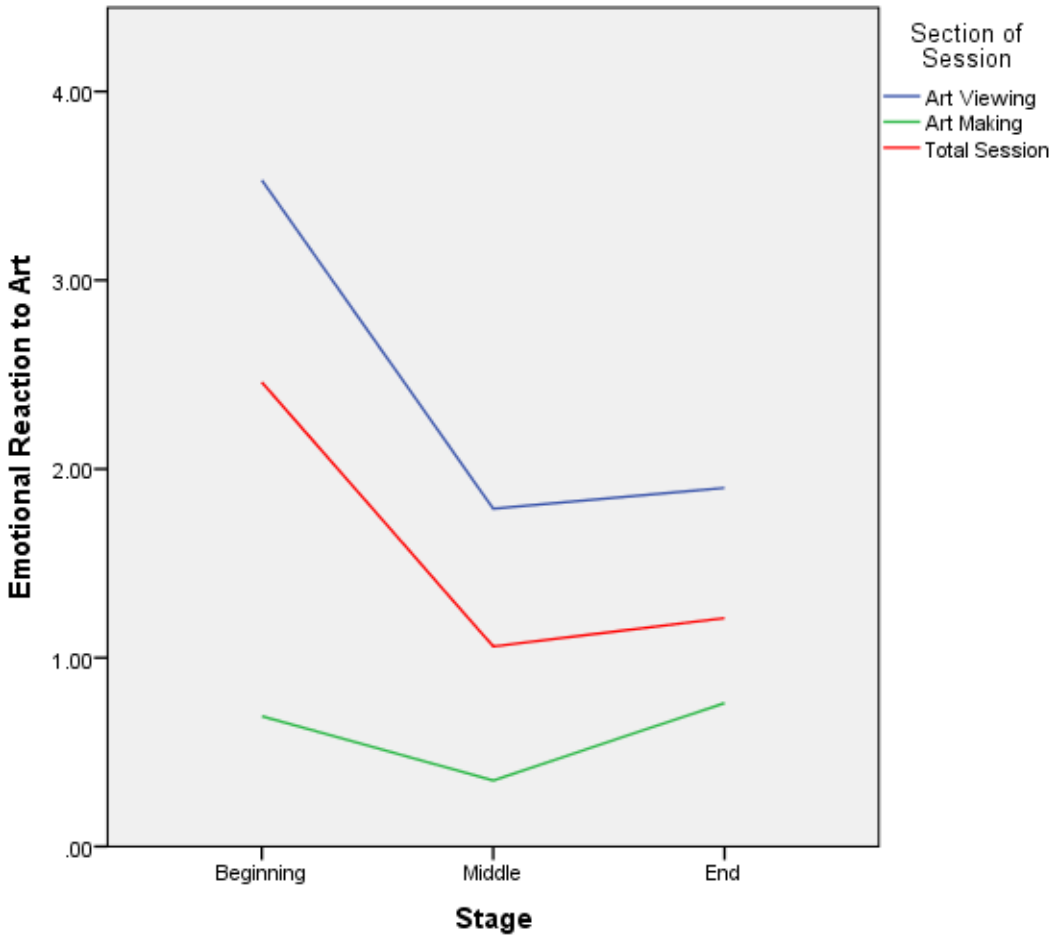

Figure 19. Emotional reaction to art across three time points.

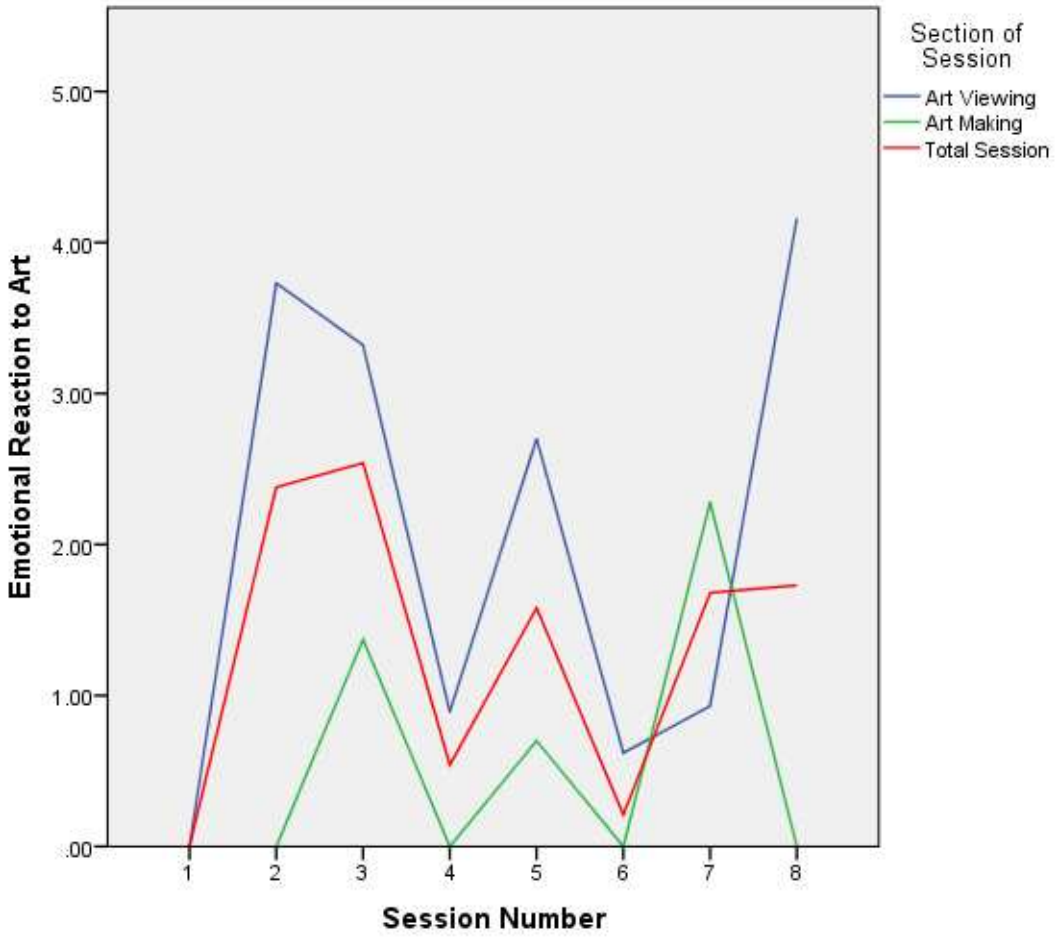

Figure 20. Emotional reaction to art across 8 sessions.

Requesting Guidance

Data was coded as requesting guidance when participants made direct requests for guidance what to do in the sessions. Across stage one 2.38% of the data was coded as including an requesting guidance, in the middle stage this rose to 2.82% and in the final stage was 2.81%. In the art-viewing segments, across stage one, this code was not applied, in stage two, 0.03% of data was coded and 0.47% was coded in the final stage. In the art-making segments, across stage one, this code was applied to 6.36%, this fell to 5.68% in stage two and fell further to 4.64% in the final stage, an overall decrease of 1.72%.

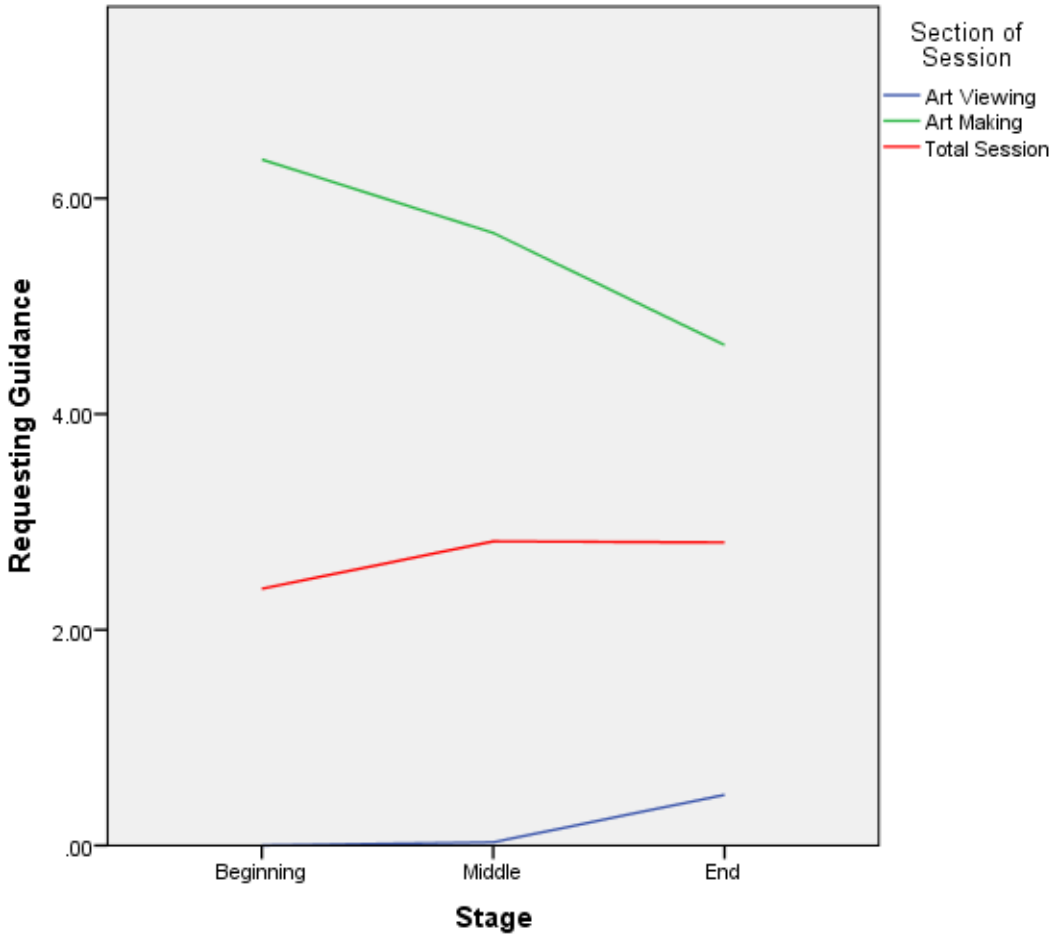

Figure 21. Requesting guidance across three time points.

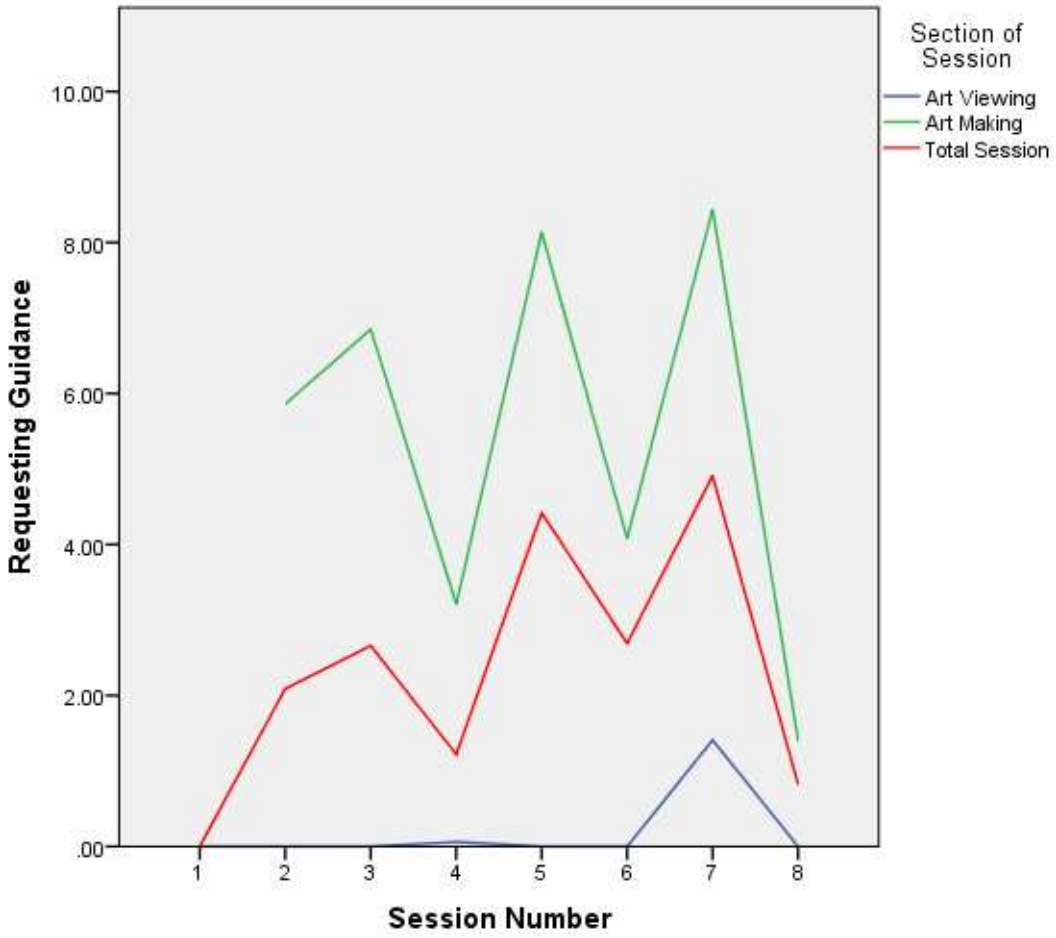

Figure 22. Requesting guidance across 8 sessions.

Seeking Knowledge

Data was coded as seeking knowledge, where participants made statements in which more information or knowledge about a painting, object, artistic technique or the group is being requested. Across stage one 3.54% of the data was coded as including, knowledge seeking, in the middle stage this rose to 6.32% and in the final stage fell slightly to was 4.46%, an overall increase of 0.92%. In the art-viewing segments, across stage one, 4.67% of data was coded as seeking knowledge, in stage two, this rose to 9.46% and fell to 8.44% in the final stage, an overall increase of 3.77%. In the art-making segments, across stage one, this code was applied to 1.81%, this rose to 3.90% in stage two and fell further to 1.05% in the final stage.

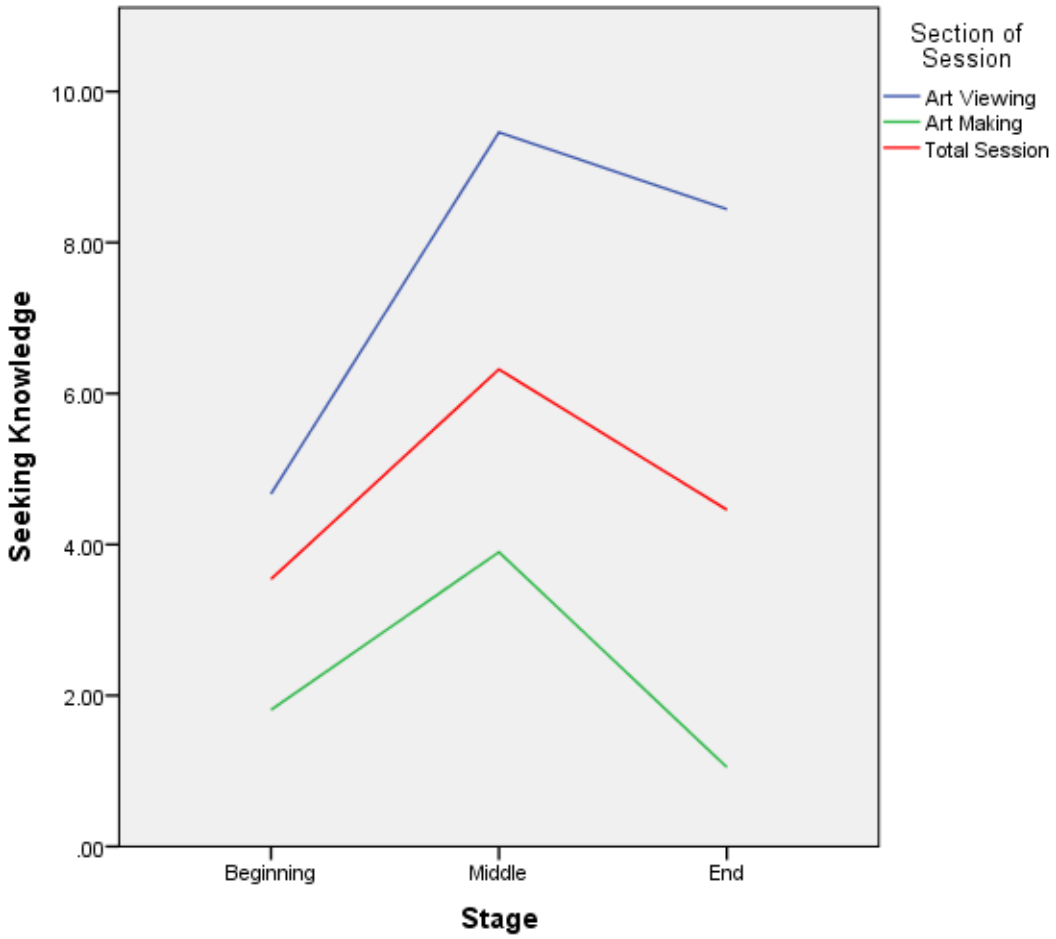

Figure 23. Seeking knowledge across three time points.

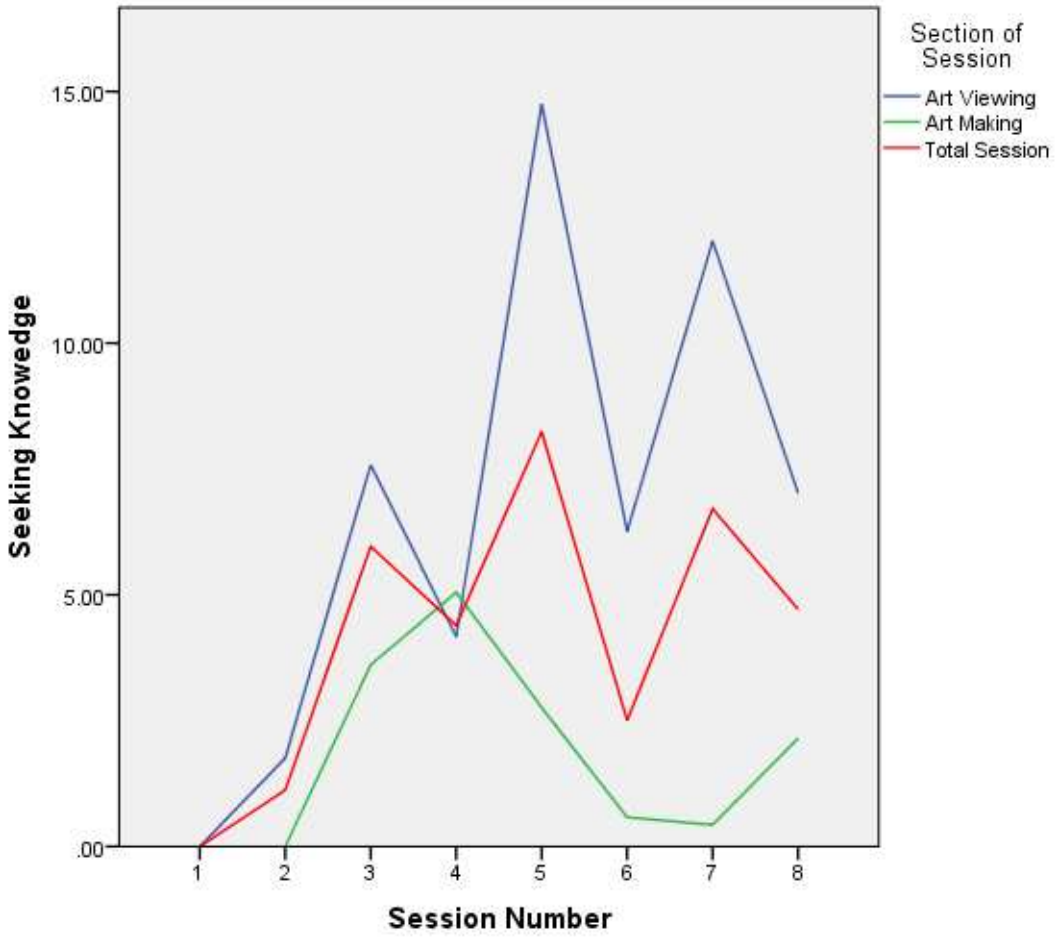

Figure 24. Seeking knowledge across 8 sessions.

Opinion of group

Participants' opinion of the group on the whole was coded but was not reported frequently thus necessitating quotations relating to this theme to be presented qualitatively. Overall, no negative appraisals of the groups were given by participants at any stage. The group was described by participants as 'interesting' and 'intriguing'. Participants also commented on the supportive nature of the group 'yeah, very nice people as well' and commented that the group was valuable to them and 'it brought lots of memories back.'

Participant comments also reflected the fact that the groups felt suitable for anyone, regardless of previous artistic ability

'It has been very nice, I have always regarded myself as not so much arty but crafty, but I have enjo*yed this very much'* (Participant with dementia)

Participants also spoke of their enjoyment of the group and a sense of enthusiasm for art derived from it.

'I look forward to it every week, I go home, full of enthusiasm, it doesn't get to paper very often, but one of these days it will' (Participant with dementia)

Carers also gave positive feedback regarding the impact of the group on the individuals they support. One carer stated;

'He says to the [he wants to go to the] art gallery and it was just that joy on his face he just *absolutely loves coming, you know it changed his life'* (Carer)

Discussion

Verbal Fluency

The study looked at the impact of the intervention on verbal fluency, measured as the amount of disfluencies and semantic clustering in speech.

Disfluencies.

Overall, across all 8 sessions, disfluencies decreased by 0.41%. When art-viewing and art-making components are evaluated separately, disfluencies across art-viewing segments, increased steadily throughout the course of the sessions whereas in the art-making component, disfluencies decreased.

The increase in disfluencies across art-viewing segments are likely to be a result of more complex conversations around the art being initiated in later sessions when participants had become accustomed to the format of the sessions and were experienced at giving reflections. The reflections given in later sessions were often more complex increasing the

likelihood of verbal disfluency. To illustrate this point, below are two examples of participant responses when asked to give their opinion on a piece of art, the first quotation was a response given in session two and the second quotation an example from session six.

Session Two:

'I would have said they are trees, like tw, twigs' (Participant with dementia)

Session Six:

*'I*t is lovely the way somebody somewhere has got this, this tree and has put it with this tree, because that represents that, so they are joined together to become one and of course that which is in, out there, will help th*em all come together'* (Participant with dementia)

Arguably, the first statement is more descriptive whereas in the later session, the quotation illustrates participants making more interpretation of the art, therefore making more complex statements which may increase the likelihood of disfluency. It is therefore possible that the increase in disfluency across the art-viewing segments represents a positive move towards more complex communication.

An alternative explanation for the increase in disfluencies in art-viewing sessions, is linked to emotionality. Although the participant's emotional reaction to art was higher in the early sessions, the emotional reaction to the group peaked in the final stage. It may be that as participants were experiencing a higher level of emotional arousal in these later sessions, it became more difficult for them to communicate some of the complex ideas being discussed in the art-viewing segments, leading to an increase in disfluencies.

In contrast to this, the art-making sessions, were less formal, frequently involving smaller conversations, taking place whilst focussing on completing the art-making task and between one or two individuals rather than including the whole group. Therefore,

conversation in this component arguably became less anxiety provoking for individuals across the course of the sessions as they became familiar with each other, allowing a decrease in disfluency.

Semantic clustering.

Decline in language function includes a loss of semantic skills (Garrard, Patterson, Watson & Hodges, 1998). The current study showed an increase in semantic clustering of 3.57% across the total session, suggesting a positive impact on verbal fluency over time. The increase was greater within the art-making component. As discussed previously, the less formal nature of the art-making segments, together with the greater opportunity within this for smaller group conversations, arguably encouraged participants to feel more relaxed, with this effect increasing as the weeks went on. Data from other codes support this to an extent, with more personal descriptive information being reported in the later stages of the art-making segment of the group, representing less formal and task centred conversations. The sharing of personal information with others also indicates a level of comfort in the setting and the social context. This is also consistent with the decline in disfluencies during art-making, indicating an increase in verbal fluency.

It is also important to consider that sessions were always conducted in a format whereby the art-viewing preceded art-making. It is arguable that due to this, that participants were more anxious or less settled and comfortable in the art-viewing segments of sessions and that when participants reached the art-making segment each week, they had settled more comfortably into the group for that week, meaning that verbal fluency was less impeded. It is also encouraging that semantic clustering increased across sessions in the art-viewing segment, representing an increase in verbal fluency, despite the small increase in disfluencies.

Overall, data collected with regard to disfluency and semantic clustering, presented encouraging findings, relating to the positive impact of such interventions on verbal fluency in people with a dementia.

Memory

The study also looked at the impact of the intervention on both lifetime memory and memory of previous sessions.

Lifetime memory.

Overall, the groups reporting of lifetime memories rose 4.27% across the course of the 8 weeks. An increase was shown in both art-viewing and art-making. More lifetime memories overall were produced in the art-viewing component of the groups. This may be due to participants being encouraged to bring in interesting items to discuss in the art gallery segment. The sharing of these items, prompted individuals to discuss the memories they had in relation to these items. For example:

'That is a letter opener and my husband had a lot of letters to do with his work, so that was *very useful'* (Participant with dementia)

It may also be possible that discussion of the visual art presented in the gallery, stimulated individuals' memories, leading to increased reporting of these memories over time. This increase is interesting as the art groups were not set up specifically to provide a space for or focus on reminiscence, however, it seems that memory processes had been stimulated; this is also in line with individuals' qualitative appraisals.

*'It made you, you took yours*elf back again into your childhood and brought you forward into the life you are in now which we would call reminis*cing but it was more than that'* (Participant with dementia)

Memory of previous session.

Participants' recall of previous sessions overall increased slightly. The percentage of increase was small but the pattern was consistent across art-viewing, making and the two combined. Memories of previous sessions were recalled more often in the art-viewing segments of the sessions. This may be due to individuals making reference to and comparisons of pieces of art seen in the gallery on different weeks. It is also possible that this effect simply represents that conversations about previous sessions are more likely to happen at the beginning of each session as a recap of what has been seen so far. The increase in memory of previous session is encouraging however, as it suggests that participants were able to retain information and memories about previous week's sessions.

Additional codes

Observations and opinions of art

An overall decrease of 1.7% in opinions of art was seen. With the art-viewing and art-making segments showing a similar pattern, with a rise in the middle stage and decline in the final stage. It is interesting to consider the link between this and other codes such as factual observation. Interestingly, factual observation in art-viewing, also peaked in the middle stage and dropped in the final stage. It is possible that conversations became more social and less task focussed in the later stages of the group, perhaps indicating stronger social connections within the group. This hypothesis is further consolidated by considering the rise in personal descriptive information and reporting of lifetime memory in the later stage. It is also important to note the potential impact of the particular art work being viewed and made. Some specific artwork may elicit particularly strong or particularly neutral responses in individuals.

Sharing factual knowledge.

Across stage one, 1.49% of data was coded as sharing factual knowledge. This rose to 1.68% across stage two and was 1.74% across stage three, an overall increase of 0.25%. On the whole, sharing factual knowledge stayed consistent across sessions. In the art-making sessions, knowledge sharing increased by 1.14%. This may be due to participants gaining knowledge and expertise in the art-making techniques, leading them to be more able to share knowledge with each other.

In the art-viewing, there was a peak in the first stage, meaning that there was an overall decrease in sharing of knowledge. One reason for this early peak may have been that one of the early sessions involved discussion of the local area, leading to people sharing considerable local knowledge, for example:

'Yes it was bombed in a, a lot of different places were raised to the ground' (Participant with Dementia)

Emotional reaction to group.

Participants emotional reaction to the group rose 6.4% over the 8 sessions. A similar pattern was seen in the art-viewing and art-making segments. The peak in the final stage of the intervention may be to be expected as discussion of the group coming to an end, led individuals to express their emotional reactions to this. The qualitative data confirms that these emotional reactions to the group were positive, suggesting the group elicited positive emotions and elevated mood.

The increase in emotional response to the group could be said to indicate individual's emotional investment in the group. This is particularly important as previous research has suggested that art work can stimulate release of trapped emotions which leads to stimulation of attentional networks and encourages communication (Rosenberg, 2009).

Emotional reaction to art.

There was an overall decrease in emotional reaction to art. There was a peak in emotional reaction in the first stage of the 8 weeks. It is possible that the novelty of the art gallery environment, and the art viewed in early sessions prompted more of an emotional response which later dropped as the group became acclimatised to viewing art and exploring their reactions to it.

Emotional reactions to art were reported less on the whole than factual observations of art, which may be reflective of participants being more confident in making factual observations than in expressing their own emotional reaction to the art work. It is encouraging that individuals were able to report their emotional reactions to art however, as research suggests that expression of emotion can allow people with dementia to bypass some cognitive deficits (Kahn-Denis, 1997).

Limitations

The current study reports the cognitive impact of art-making and art-viewing on people with a dementia over a series of 8 art gallery-based sessions. The study builds on the work of Eekelaar et al. (2012) by extending the number of sessions and allows a comparison of the art-making and art-viewing segments. However, the study had several methodological limitations, which could usefully be addressed by future research.

Not all sessions were successfully audio-recorded due to malfunctioning recording equipment, which lead to missing data. It was also not possible to identify all individual participants from the recordings; therefore, participant data was grouped, which did not allow analysis on an individual level. This also meant that the data might have been vulnerable to being skewed by more or less vocal participants, although careful listening of the recordings

did not support this concern. The grouping of the data from two separate, although similarly run, groups also means that potential differences between groups were not addressed.

The approach to recruitment used in this study resulted in a largely self-selected sample. People with a prior interest in the arts may have been more likely to respond to the advert and may have been more likely to benefit from the intervention. However, the audio-recordings revealed that several individuals had not previously considered themselves to have an interest in the arts, suggesting that the benefits of such an intervention may be applicable to a wider population.

This study presented data from art-making and art-viewing components of the intervention separately, in order to allow consideration of any differences in outcomes achieved from each. It is acknowledged however, that this makes data vulnerable to a recency effect, as the art-making component always following art-viewing. Although this was unavoidable as that art-making activities were dependant on the prior art-viewing, this may have led participants feeling more relaxed and confident in the art-making component, or may conversely lead to fatigue effects.

Despite methodological limitations, the study used novel ways to measure verbal fluency and memory in those with a dementia, and over a longer number of sessions than previous research has assessed. Although the study did not set out to attribute changes to any one factor, it does support the utility of community-based art interventions with this population.

Implications for further research and clinical practice

The limitations discussed above outline considerations for future experimental research in this area. Future research should incorporate a usual activity control group, in order to separate intervention specific factors from other variables such as social contact or

leaving the home. The use of larger sample sizes in future studies would allow tests of statistical significance to be carried out. Future research could also consider measurement of further cognitive skills, in addition to verbal fluency and memory.

The findings also have implications for clinical practice as they suggest that community-based interventions may provide cognitive benefits as well as being in line with recent government strategies for dementia friendly communities (Alzheimer's Society, 2013). The current study suggests that art viewing and art making can stimulate the cognitive skills of verbal fluency as well as memory in individuals with dementia. This is likely to aid individuals in participation in social interactions, both with carers and with others. The community based nature of the groups, coupled with this increase in skills used in social interactions, may lead to increased community participation and reductions in social isolation for people with dementia. This falls in line with Eekelaar et al. (2012) who conducted a thematic analysis of participants experiences of an art viewing and art making group. Eekelaar's data suggested that individuals perceived the groups to decrease social isolation and give opportunities for shared experiences between people with dementia and their carers.

Clinicians should consider making links with community organisations such as local art galleries to facilitate the introduction of projects such as this into the community. Clinicians may have a role in signposting people with dementia and their carers to museum and art gallery resources (Camic & Chatterjee, 2013) and informing them of their potential benefits. Clinicians should also have a role in providing dementia training for art educators and relevant personnel in order for groups such as this to be sustainable without the need for ongoing clinical input.

Conclusion

The results of the current study need to be interpreted cautiously but they do provide further evidence to support continued research into the utility of art gallery-based

interventions for those with dementia and their carers. The results suggested that on the whole, the intervention did increase verbal fluency, particularly in the art-making segments of sessions. It is thought that this may be due to the art-making occurring after art-viewing, allowing acclimatisation to the group, or due to the format of the art-making sessions being less formal. In terms of memory, both lifetime memory and memories of previous sessions increased over the course of the interventions, suggesting the intervention may have been successful in stimulating memory. The findings relating to verbal fluency and memory reflected that of previous studies, which suggested increases in accessibility to memory (MacPherson et al., 2009) and improvements in communication (Kinney & Renz, 2005; Musella et al., 2009; Rosenberg, 2009) are attainable. Examination of further codes supports the hypothesis that the art-making segments may have been experienced as less formal and provided more opportunity for social bonds to develop with others. Knowledge seeking overall increased, suggesting sustained interest in the art and requesting guidance, primarily in the art-making segment of intervention, decreased over time, arguably suggesting participants had retained increased skills and confidence in using art materials alone.

Despite methodological limitations, this study offers some support to suggest there may be a positive impact on verbal fluency and memory stimulation from participating in art gallery-based programmes that involve viewing and making art. Further research allowing attribution of these effects to more specific aspects of the intervention is suggested.

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RHEA YOUNG BSc (Hons), MSc

THE COGNITIVE IMPACT OF ART-GALLERY INTERVENTIONS FOR PEOPLE WITH DEMENTIA.

SECTION C

Appendices.

Appendix A: Search Terms

Initial Search Based on Terms used by Eekelaar et al. (2012).

Search	Search Term	PsycINFO	Medline	Web of Science	Cochrane database
1	"view* art" OR "museum*" OR "art education" OR "art museum*" OR "art galler*" OR "art program*" OR "art project" OR "community art*"	10007	2879	80482	54
2	"dementia" OR "Alzheimer*"	46649	98745	193352	10871
1 & 2		116	2	134	0

Initial Search expanded to include terms related to cognition

Search	Search Term	PsycINFO	Medline	Web of Science	Cochrane database
3	"Cogniti*" OR "Communication" OR "language" OR "comprehension" OR "Memory" OR "problem solving" OR "perception" OR	664120	858851	1743632	48990

	"abstract thinking"				
1, 2 AND 3		0	0	68	0

Search expanded to include terms: 'Art', 'artistic' and 'Arts'

Search	**Search Term**	**PsycINFO**	**Medline**	**Web of Science**	**Cochrane database**
1	ABOVE TERMS or Art, Arts, artistic (Not art* as this includes article).	155100	8980	371937	793250
2	"dementia" OR "Alzheimer*"	46649	98745	193352	10871
3	"Cogniti*" OR "Communication" OR "language" OR "comprehension" OR "Memory" OR "problem solving" OR "perception" OR "abstract thinking"	664120	858851	1743632	48990
1 & 2 & 3		162	8	290	1171

Additional Search conducted to include specific terms relating to arts-based activities (music, drama, etc).

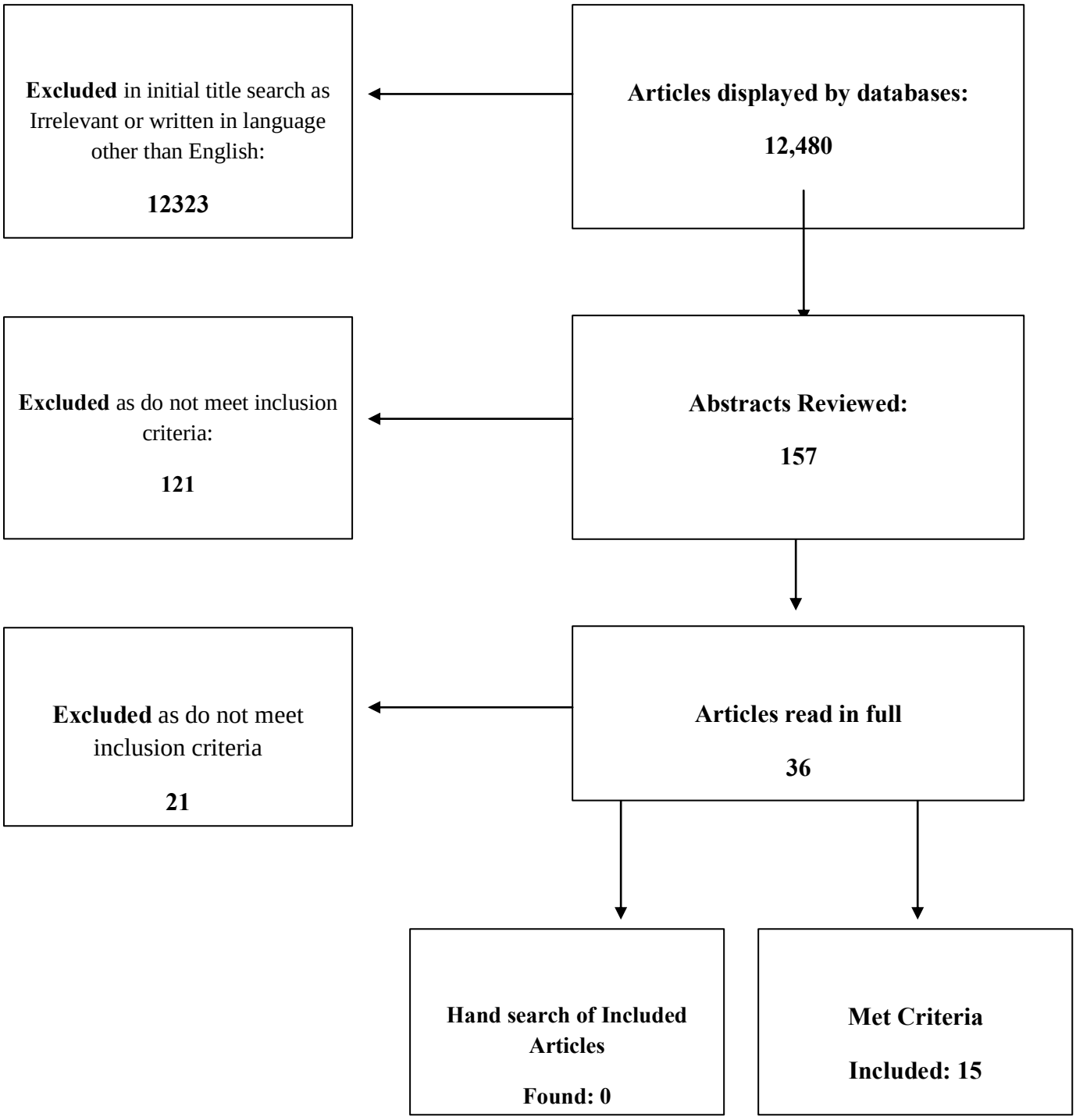
Search	**Search Term**	**PsycINFO**	**Medline**	**Web of Science**	**Cochrane database**
1	"dementia" OR "Alzheimer*"	46649	98745	193352	10871
2	"Cogniti*" OR	664120	858851	1743632	48990

	"Communication" OR "language" OR "comprehension" OR "Memory" OR "problem solving" OR "perception" OR "abstract thinking"				
3	Music OR sing* OR group sing* OR community music OR drama OR theatre OR poetry OR creative writing OR fine art OR decorative art OR literary art OR literature OR perform* art	2468972	1618259	3161651	76928
	1,2,3	2518	740	6534	745

Additional Searches

Searches were additionally conducted of the Journal of Arts and Health homepage and the British humanities Index. A search of google scholar was also conducted.

Appendix B: Flow chart depicting literature search



Appendix C: Study Summary Tables

Table 1

Literary Art

Author/Date	N	Methodology
		Mixed Methods
Billington et al (2013)	61	A mixed methods design conducted reading programmes in three health care environments. Semi structured interviews, analysed using thematic analysis and a questionnaire measure were completed by paid carers who observed individuals in three reading groups conducted in different settings.
		Qualitative
Holm et al (2004)	6	The facilitator of a 6 week storytelling programme run for 6 people with dementia completed a reflective diary which was analysed qualitatively using content analysis revealing three themes from which pedagogic implications were drawn. Coding was conducted by one author and discussed with fellow authors.
		Quantitative
Phillips et al (2010)	56	A quasi experimental, repeated measures design was used to evaluate a storytelling intervention conducted twice weekly for 6 weeks when compared with a usual care control group. Quantitative measures were completed by nursing staff at baseline and two post intervention time points.

Table 2

Performing Arts

Author/Date	N	Methodology
		Mixed Methodology
Sheratt et al (2004)	24	A within-participants, repeated measures design was employed. With each participant being observed over four conditions; no music, taped music, taped music played by musician and live music. Investigated impact of live music on people with dementia using continuous time sampling and direct observation methodology. Inter observer reliability of continuous time sampling codes was calculated using Cohen's Kappa. Percentages and frequencies of observations were obtained and Chi Squared and Wilcoxon signed ranks tests conducted where appropriate.
Davidson et al (2011)	48	Reported results from two 6 week singing programmes for 48 PWD and carers. Obtained quantitative data from standardized measures and specially designed questionnaires completed by caregivers and ratings from PWD taken at pre and post time points. Qualitative analysis of video footage was also conducted and frequencies of observed behaviour were reported.
Camic et al. (2011)	10	A mixed methods, repeated measures design was used to evaluate a singing group for PWD and carers over 10 weeks using standardized measures and interviews at pre, post and 10 week follow up time-points. Interview data was analysed using thematic analysis.
		Qualitative
Lepp et al (2003)	12	Ran two group interventions, one involving rhythm and songs, and the other storytelling. Focus groups were run with carers from both groups one month post completion of intervention. Data analysed using

		principles of Phenomenography
	Quantitative	
Van der Vleuten (2013	45	Using a quasi-experimental design assessed impact of live music performances on the quality of life of individuals with dementia using observational rating scales completed by caregivers. Descriptive statistics, t-tests and regression analysis was completed.

Table 3

Visual Art

Author/Date	**N**	**Methodology**
	Mixed Methods	
Eekelaar et al (2012)	6	Evaluated a three week art gallery based intervention of PWD. Interviews were carried out with participants and carers pre and post intervention and interviews analysed using thematic and content analysis. Intervention sessions were audio recorded, transcribed and analysed using content analysis.
Camic et al (2013)	12	Conducted a mixed methods study to compare two 8 week art gallery based interventions, one conducted in a traditional art gallery and one in a contemporary art gallery setting. Pre and post standardised measures were administered and analysed using parametric and non-parametric tests and qualitative interviews analysed using thematic analysis.
MacPherson et al (2009)	15	Evaluation of 6 week art gallery intervention for PWD using continuous time sampling. Qualitative data was also provided from focus groups conducted with participants, carers and facilitators and analysed using grounded theory.
Musella et al (2009)	10	Examined impact of a 5 week visual art programme

		on people with Alzheimer's. A series of neuropsychological tests, were completed, specific measures were not reported, and a semi-structured interview with carers were completed, although the approach used to analyse these was not reported.
Ullan et al (2013)	21	Participant observation in the form of a field record was conducted by authors during 5 artistic workshops for PWD to assess engagement. Percentages of sustained interest and attention were calculated. Following 5 workshops, focus groups was carried out with participants, and separately with their professional carers, method of analysis of these was not reported.
		Quantitative
Rentz (2002)	41	Evaluates outcomes of 'memories in the making' art project for PWD. Staff completed rating scales based on observations of participants during art sessions. Each member of staff evaluated one participant for one hour rating on 12 indicators of well-being on a 4-point Likert scale, devised by authors.
Kinney et al (2005)	12	Study employed repeated measures to observe well-being of PWD taking part in the 'memories in the making' art project and during other day centre activity. An observation tool, which demonstrated adequate inter-rater reliability, was used to rate sustained attention and other variables at 10 minute intervals. Paired sample T-tests were conducted on data.

Appendix D: Ethical Approval

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Appendix E: Data Permission

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Appendix F: Participant Recruitment Poster

Volunteers Needed!

'Viewing Together-2'

An art-group project for older people with a memory problem and their carers starting 28th August 2012

The group is part of a research project to be conducted at ********** carried out by the ********** and **********

We are seeking volunteer pairs (person with a memory problem and carer (family or professional) to participate in a research project to help us understand the benefits of viewing and making art in an art gallery.

Interested in finding out more?

Please contact: xxx

What does the Project involve?

- 8 two-hour sessions at the ********** Gallery looking at and talking about art and making art
- Video/Audio recording of sessions
- Completion of questionnaires and an interview
- No previous art experience needed!
- Refreshments provided

Appendix G: Consent Form for Participants

Participant number:_____

Participant CONSENT FORM

Viewing Together Project-2 at ********** gallery

Research sponsor: **********

Please initial box

1. I confirm that I have read and understood the Information Sheet for Participants for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without my access to the gallery being affected.

☐

3. I understand and I agree to have the Viewing Together-2 groups video-recorded and photographed, and that these recordings will be kept in strict confidence and destroyed when no longer needed for the study.

☐

4. I understand that any verbatim quotes from the groups during the study will not be used in any way that will identify me in the write-up or publication of the project.

☐

5. I understand that the data will be made anonymous and be available to other qualified researchers for further research

☐

6. I agree to take part in the above study.

☐

7. I would like to be sent a copy of the overall evaluation of the project when it is available

☐

_____ _____ _____

Name of Participant Date Signature

_____ _____ _____

Name of researcher Date Signature

cc: Participant

Research File

Appendix H: Consent Form for Carers

Participant number NC:_____

CONSENT FORM for CARERS

Viewing Together-2 Project at **********

Research sponsor: **********

Please initial box

1. I confirm that I have read and understood the Information Sheet for Participants for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without my access to the gallery being affected.

☐

3. I understand and I agree to have the Viewing Together-2 groups video-recorded and photographed, and that these recordings will be kept in strict confidence and destroyed when no longer needed for the study.

☐

4. I understand that any verbatim quotes from the groups during the study will not be used in any way that will identify me in the write-up or publication of the project.

☐

5. I understand that the data will be made anonymous and be available to other qualified researchers for further research

☐

6. As someone who knows_____ very well, I agree that I understand my role as personal consultee, which was explained to me by a member of the research team. Part of the role of a personal consultee is to inform the researchers if I believe the wishes and feelings of _____ would likely lead him/her to withdraw from the project if he/she had the capacity to do so.

☐

7. I agree to take part in the above study.

☐

8. I would like to be sent a copy of the overall evaluation of the project when it is available

☐

_____ _____ _____

Name of Participant Date Signature

_____ _____ _____

Name of researcher taking consent Date Signature

cc: Participant, Research File

Appendix I: Participant Information Sheet

Participant number PN_____

'Viewing Together-2' Art Group Project for Older People

at the **********

Research sponsor: **********

INFORMATION SHEET

for participant with a memory problem

Viewing Together-2 Art Group Project

Dates: xx - xx

Venue: **********

What is the study all about?

In collaboration with **********, The ********** Medical School is supporting a research project investigating the benefits of viewing art in a gallery for older people with memory problems and their partners, families or key supporters. This is a follow-up to a previous project 'Viewing together', also run at **********.

Why have I been chosen?

We are sending you this information because one of the charities we work with and you attend have put your name forward as someone who might benefit from an art viewing programme at **********. This is an information sheet explaining what is involved to help you decide whether you would like to participate.

What is the Viewing Together-2 project?

The art viewing programme is an eight-week group consisting of 10 people with mild to moderate memory difficulties accompanied by a relative/friend, for a total of 20 people. Most participants will have received a diagnosis of a dementia in the early to mid stages.

The group will meet once per week for about two hours at the **********and include refreshments. Viewing and discussing art in a gallery has been found to be a helpful way for

people to enjoy themselves, help relax, increase concentration and socialise with other people.

Will everyone interested in joining the group be included in the project?

No, not everyone, but it is likely that most people who decide to participate in the Viewing Together-2 project will be offered a place. Those that are well enough to come to a two hour group once per week for eight weeks will be offered a place in the group if they are thought to be able to benefit from it.

Do I have to take part?

Participation in the study is completely voluntary and you may withdraw from it at any time without giving your reasons and with no affect on the care you, or the person you care for, receive now or in the future, or in your being welcomed to come back to the gallery. In this situation, we would still like to use the information you have provided to us.

Do I have to be knowledgeable about art?

No, not at all. This is a group designed to be enjoyable. People who join the group do not have to know anything about art history or ever had made any art. No one will ever be required to do anything they do not want to do.

What if I want to join the art group, but not be part of the research project?

In this case, we can advise you on art groups run at the gallery or in the community.

What will happen should I choose to take part?

If you are interested in taking part in the research project, you would be asked to sign a consent form and be expected to join the Viewing Together-2 group, which will run for eight weekly sessions.

Each session of the View Together-2 project will last for about two hours, with refreshments provided. During the course you will be looking at and talking about different art-works in the gallery along with your family member/friend. This will be followed by further discussion and the opportunity to make art, if you'd like to give that a try. The group will be run by an art educator with support from a researcher.

As part of the evaluation for the group, notes will be taken by the researcher during the group and a photographer will come along to several sessions to take photos and film the group at work and some of the art work produced. This will help researchers understand if the group is helpful.

Will I incur any expenses by taking part or receive any payments?

Unfortunately, we cannot provide payment or pay travel expenses. If travelling is a problem for you, please discuss this with us and we will try and assist you.

What are the possible benefits of taking part and are there any disadvantages or risks?

We hope that you will find the experience enjoyable, that you will benefit from having the opportunity to meet other similar people, and that you will learn ways to use viewing and making art to help increase enjoyment of daily living, but cannot promise this. We do not anticipate any negative side-effects but, sometimes people can at first be a little nervous about joining a new group and about talking about art. This usually stops by the end of the first group meeting. If you remain nervous or uncomfortable we would take care to offer you further advice and support.

What happens when the research study finishes?

We will provide you with a brief written report about the results. We will also provide you with the names and locations of other art groups should you wish to continue.

What if there is a problem?

Should you have any complaint or concern about any aspect of the project or how you have been treated, then please do contact any member of the research team who will do their best to answer your questions.

If you remain dissatisfied and wish to complain formally, you can do this through the university complaints procedures and contact **********, the Chair of the ethics panel that approved this project in the Department of Applied Psychology at Canterbury Christ Church University on ********* or by email at **********.

Will my taking part in the study be kept confidential?

Yes, we will not inform anyone you are taking part without your permission. If you like, and with your written permission, we can inform your GP about your participation in the group.

What will happen to the information I give?

Your information will be kept confidential, stored in a locked filing cabinet at the university and will be made anonymous when the study report is written so you will not be identified. If you do not wish to be identified in photography or film please let us know. Information identifying you or the person whom you are caring for will not be disclosed, however. Information from the project will be destroyed 10 years from when the project is completed.

Only in exceptional circumstances, such as if you or someone else was at risk of harm in any way, would information be disclosed. In such situations, any further action would always be discussed with you first.

What will happen to the results of the research study?

The results will hopefully help us improve our understanding of how group art viewing and art making can help people with memory difficulties and their carers increase the quality of their lives.

The project report will be shared with professionals working in this area as well as published in national or international journals. It is possible that information from the study could be used for future collaborations with other colleagues in the UK who are researching in this area. The photographs and film may be used for gallery publicity with your permission. A summary of the findings will also be offered to you.

Who has reviewed the study?

The project is examined by an independent group of people called a Research Ethics Committee to protect your safety, rights, well-being and dignity. This study has been reviewed and given favourable opinion by University's Research Ethics Panel on xx.

Further information and contact details: Do contact any member of the research team for information and advice about the study:

Project Lead: Dr **********

Project Co-Lead: **********

Art Educator: **********

We thank you for all your help with this new project and look forward to meeting you

Appendix J: Information Sheet for Carers

Participant number FCN_____

'Viewing Together-2' Art Group Project for Older People

****

INFORMATION SHEET

for FAMILY CARERS

Viewing Together-2 Art Group

Dates: 2.30-4.30pm Tuesday xx - Tuesday xx

Venue: **********

What is the study all about?

The ********** Medical School is supporting a research project investigating the benefits of viewing art in a gallery for older people with memory problems and their partners, families or key supporters. This is a follow-up to a previous project run at ********** in 2011. The research is sponsored by the **********

Why have I been chosen?

We are providing you this information because you are a carer of someone with a memory problem. One of the charities we work with or the person you care for has put your name forward as someone who might be interested in participating in an art viewing programme along with the person they care for. This is an information sheet explaining what is involved to help you decide whether you would like to participate.

What is the Viewing Together-2 project?

The Viewing Together-2 project is an eight-week group consisting of up to 10 people with mild to moderate memory difficulties and their carers, for a total of 20 people. Most participants will have received a diagnosis of a dementia in the early to mid stages.

The group will meet once per week for about two hours at the ********** and include refreshments. Viewing and discussing art in a gallery has been found to be a helpful way for people to enjoy themselves, help relax, increase concentration and socialise with other people.

Will everyone interested in joining the group be included in the project?

No, not everyone, but most people who decide to participate in the Viewing Together-2 project will likely be offered a place. Those people who have a mild to moderate memory problem that are well enough to come once per week for about two hours for eight weeks will be offered a place in the group. We are also asking that you, as a carer, also agree to accompany the person you care for and take part in the group.

Do I have to take part?

Participation in the study is completely voluntary and you may withdraw from it at anytime without giving your reasons and with no affect on the care you, or the person you care for, receive now or in the future, or in your being welcomed to come back to the gallery. In this situation, we would still like to use the information you have provided to us.

Do I have to be knowledgeable about art?

No, not at all. This is a group designed to be enjoyable. People who join the group do not have to know anything about art history or ever had made any art. No one will ever be required to do anything they do not want to do.

What if I want to join the art group but not be part of the research project?

In this case, we can advise you on art groups that run at the gallery or in the community.

What will happen to me should I choose to take part?

If you are interested in taking part in the research project you would be asked to sign a consent form and be expected to join the art group, along with the person you care for, which will run for eight weekly sessions.

Each session of the Viewing Together-2 project will last for about two hours, with refreshments provided. During the course you and the person you care for will be looking at and talking about different artworks in the gallery. This will be followed by further discussion and the opportunity to make art, if you'd like to give that a try. The group will be run by an art educator with support from a researcher.

As part of the evaluation for the group, the researcher will take some notes whilst the group is running. A photographer will also attend to film and photograph the group to document what happens and any art work made by group members.

The data (notes, photos and film) collected will be used by researchers to evaluate the group.

The art groups will also be audio recorded so the researchers can listen to each group meeting to better understand if it is helpful.

Continued capacity to consent to participate in the project

Although_____, the person whom you are caring for, has given informed consent to participate in this research as of _____ (date) we realise that because of the nature of dementia_____ (name) may not be able to freely

decide to continue to consent to participate over the course of the art group or at the ten week follow-up period. As someone who knows_____ very well we are asking that you become a personal consultee for the person you care for in order to inform us if you believe the wishes and feelings of _____ would likely lead him/her to withdraw from the project if he/she had the capacity to do so.

If you are concerned that _____may no longer wish to participate in the project please contact Dr ********* and we will discuss with you if it is best to withdraw _____from the project. If this were to be the case, please know that we would completely respect and support your decision in the matter.

Will I incur any expenses by taking part or receive any payments?

Unfortunately, we cannot provide payment or pay travel expenses. If travelling is a problem for you, please discuss this with us and we will try and assist you.

What are the possible benefits of taking part and are there any disadvantages or risks?

We hope that you will find the experience enjoyable, that you will benefit from having the opportunity to meet other similar people, and that you will learn ways to use viewing and making art to help increase enjoyment of daily living, but cannot promise this. We do not anticipate any negative side-effects but, sometimes people can at first be a little nervous about joining a new group and about talking about art. This usually stops by the end of the first group meeting. If you remain nervous or uncomfortable we would take care to offer you further advice and support.

What happens when the research study finishes?

We will provide you with a brief written report about the results. We will also provide you with the names and locations of other art groups should you wish to continue.

What if there is a problem?

Should you have any complaint or concern about any aspect of the study or how you have been treated, then please do contact any member of the research team who will do their best to answer your questions.

If you remain unhappy and wish to complain formally, you can do this through the university complaints procedures and contact *********, the Chair of the ethics panel that approved this project in Faculty of Social and Applied Sciences at Canterbury Christ Church University on ********** or by email at **********

Will my taking part in the study be kept confidential?

Yes, we will not inform anyone you are taking part without your permission. If you like, and with your written permission, we can inform your GP about your participation in the group.

What will happen to the information I give?

Your information will be kept confidential, stored in a locked filing cabinet at the university and will be made anonymous when the study report is written so you will not be identified. If you do not wish to be identified in photography or film please let us know. Information identifying you or the person whom you are caring for will not be disclosed, however. Information from the project will be destroyed 10 years from when the project is completed.

Only in exceptional circumstances, such as if you or someone else was at risk of harm in any way, would information be disclosed. In such situations, any further action would always be discussed with you first.

What will happen to the results of the research study?

The results will hopefully help us improve our understanding of how group art viewing and art making can help people with memory difficulties and their carers increase the quality of their lives.

The project report will be shared with professionals working in this area as well as published in national or international journals. It is possible that information from the study could be used for future collaborations with other colleagues in the UK who are researching in this area. The photographs and film may be used for gallery publicity with your permission. A summary of the findings will also be offered to you.

Who has reviewed the study?

The project is examined by an independent group of people called a Research Ethics Committee to protect your safety, rights, well-being and dignity. This study has been reviewed and given favourable opinion by University's Research Ethics Panel on xx.

Further information and contact details: Do contact any member of the research team for information and advice about the study:

Project Lead: Dr **********

Project Co-Lead: **********

Art Educator: *****

We thank you for all your help with this new project and look forward to meeting you

Appendix K: Course Outline

Viewing and Making @ **********

An exploration of the extent to which exposure to art and the study of art can alleviate or otherwise influence the symptoms of Dementia

Learning group profile: PWD: participants from Viewing Together (PWD and carers) plus others experiencing early stages of dementia and their carers (8 sessions of 2 hours delivery)

COURSE OUTLINE
Provisional aims of the course

- Enhance participants' (carers and PWD) ability to make good use of the gallery as a learning, therapeutic and recreational resource
- Enhance participants' knowledge and understanding of visual language and associated discourses in general and the contemporary art exhibited at ********** in particular
- Enhance participants' ability to engage in and appreciate/enjoy contextual analysis
- Enhance participants' social and cultural capital (including their relationship with **********)
- Offer carers of PWD respite from the stress of caring
- Offer carers of PWD CPD in using the art gallery so that they will be able to undertake studio and/or gallery based activities independently
- Offer all participants a chance to connect/re-connect with their creativity
- Facilitate discussion

Topics to be covered

Topics and content will be dictated by exhibitions programme at ********** and by evolving vocational and educational aspirations and needs of the learning group, as a whole, and of each individual learner. However, they will certainly include: research into art and artists, contemporary theory and practice, mark making, visual language, semiotics, dialogue as practice, plus professional practice and, if appropriate, critique/s of practice.

Object handling

Notwithstanding the extent to which we shall explore objects (as texts) as a matter of course, because many contemporary artists explore objects (as texts), the theme of 'the journey' will also inform the way in which we look at/read/handle objects.

Appendix L: Facilitator questions for art viewing sessions

viewing+making

Questions to ask (PWD) when viewing contemporary art

1. Can you think of a word to describe this work?

2. Describe what you can see. Look again: is there anything else? What about the background or the area around the work? (Where does it begin and end?)

3. Can you see any colours? Are they bright or dull… light or dark? (what does the colour symbolise?)

4. Can you see any interesting patterns?

5. Can you see any interesting textures (What do these patterns/textures mean/suggest?)

6. What is the work made of? How is the work made? How is the work presented?

7. What is object made of? How is the object made/formed? How is the object presented?

8. How does this work/object make you feel?

9. What do you think the work is about?
10. Do you have any questions about this work?

The questions are designed to help people (who experience memory loss) to engage with contemporary art within a gallery context. Contemporary artworks can seem problematic, especially for non-specialists. Work might be devoid of colour, lacking texture or pattern, barely visible even! As such, the questions should be seen as being a rough guide only; to be amended where ever seems appropriate, depending on the nature of the artwork/s and the (evolving) aspirations of the viewer/s. The process of questioning should be curtailed if participants seem disinterested or (in any way) less than comfortable (facilitating an interesting conversation is more important than getting through the questions). Equally, the questioning process may be extended, provided participants seem comfortable, confident and eager to delve deeper.

(Associate Artist)

Appendix M: Code Book

1. DISFLUENCIES

Description
Statements where speech is characterised by whole or part-word or phrase repetitions, false starts, revisions or prolongations, all of which are defined by Ellis & Rittman, (2009) as abnormal disfluencies.

Inclusion criteria
Statements which contain any of the above characteristics of disfluency.

Example text:

*'It doesn'*t, it doesn*'*t simplify, it, it, how can I say it, it may be that a child*'*s being held by a mum or a father*'*

*'*All I am saying is, I am not making a fuss about it, I am, I am just saying that, that, is what happened*'*

Exclusion criteria
Extracts of text which do not contain any of the above characteristics of disfluency.

Example text:

"I don't mind hedgehogs I used to live with one in my garden"

2. SEMANTIC CLUSTERING

Description
Statements in which semantically-related words or phrases depicting semantically related concepts are produced rapidly one after another.

Semantics is defined by Harispe, Ranwez, Janaqi and Montmain (2013) as interpretation of any 'lexical units, linguistic expressions or instances, semantically characterized according to a specific context'. Therefore, statements in which more than one concept or word could be interpreted as semantically related are included.

Inclusion criteria
Any statement from PWD where two or more semantically-linked words or concepts are uttered in quick succession with at the most one word separating them.

Example text:

'He looks a bit disgusted, he looks puzzled, and disgusted'

'Oh it's my husbands, he died about 6-*7 years ago now'*

'Pen and ink'

Exclusion criteria
Strings of words or concepts which are separated by more than one word, or are not semantically linked.

Example text:

'As far as I know yeah…er, ot, other than that last one I think'

'Doesn't do much walking, but the hair is wrong'

3. LIFETIME MEMORY

Description
Content of speech includes reference to a memory about the life of PWD.

Inclusion criteria
Any statement from PWD that includes recalling specific events, activities, people, or animals from the person's life.

Example text:

'Reminds me of my dad when he used to clean out his pipe, it went down to the bottom and he twizzled it round and it came out all mucky*'*

'My father worked down the mines and he was a clever man*'*

Exclusion criteria
Any statement that recalls more recent memories from the previous art sessions (as these would be coded as memory of previous session).

Example text:

'I came here last week'

4. MEMORY OF PREVIOUS SESSION

Description
The content of speech includes reference to a memory about any aspect of the previous gallery sessions.

Inclusion criteria
Any statement from PWD that includes recalling specific events, activities, people, or paintings from previous sessions.

Example text:

'I came here last week*'*

'Seen him once before*'* (with reference to a figure in painting)

Exclusion criteria
Any statements that recall more retrospective memories, such as from before the gallery sessions, or memories of events or activities that occurred outside the gallery sessions (as these would be coded as lifetime memory).

Example Text:

'My father worked down the mines and he was a clever man*'*

5. EMOTIONAL REACTION TO ART

Description

A statement with an emotional response to a piece of art work either in the gallery or studio.

Inclusion criteria
Any statement where PWD offer a positive or negative emotional reaction to a piece of art by naming emotions they are feeling, or a non-verbal expression of emotion (e.g. crying).

Example text:

"[I feel] pitying, I feel sorry for him (figure in painting)"

"This one frightens me, I am frightened there, there will be a scream

Exclusion criteria
Any statement that includes PWD offering an opinion about a piece of art, or factual observations about a piece of art without any emotional content.

Example text:

*'That'*s a snow storm*'*

'He has got a green *beard'*

6. EMOTIONAL REACTION TO GROUP

Description
A statement with an emotional response to the art-viewing or art-making parts of the sessions.

Inclusion criteria

A statement in which PWD expresses a positive or negative emotional reaction to the art-viewing or art-making parts of the sessions, or a non-verbal expression of emotion (e.g. crying).

Example text:

"You have made my day"

"Well I suppose it's a bit too emotional to describe it [the group] as life-saving but we are sort of bordering up that area"

Exclusion criteria
Any statement that includes PWD offering an opinion about the group, or factual observations about the group, and does not have any emotional content.

'I wonder whether we will get to come back?'

7. PERSONAL DESCRIPTIVE INFORMATION

Description
Statements pertaining to personal descriptive and current information.

Inclusion criteria
Any statements where PWD articulate descriptive information about their current life (e.g. number of children they have, where they live).

Example Text:

'My eyesight is quite good for my age'

*'I have always regarde*d myself as not so much arty and *crafty'*

Exclusion criteria
Statements that pertain to the past rather than the person's present situation.

Example Text:

'My father worked down the *mines'*

'My mother used to deliver milk'

8. FACTUAL OBSERVATIONS OF ART

Description
Statements about art work that reflect observations about the physical qualities of a painting, art work or object (e.g. colour, content, shape, characters).

Inclusion criteria

Any statement from PWD about the physical characteristics of art work, either art work seen during the session or recollections of a previously seen art.

Example text:

'That's a snow storm*'*

'He has got his hand up and his leg up*'*

'It's mounted on wood isn't *it''*

Exclusion criteria
Statements about feelings about paintings or art or subjective opinions of the art (such as "I like it").

Example text:

'This one frightens me, I am frightened there, there will be a *scream'*

'I liked them'

9. OPINION OF ART

Description
Statements about paintings, art work produced in the studio or objects, which offer an opinion or judgment about the art and/or its characteristics.

Inclusion criteria
Any statement from PWD that includes a subjective opinion or judgment about the art pertaining to its content, physical qualities, or context.

Example Text:

'I don't like his white face and erm horrible teeth and his staring eyes*'*

'It is very, very striking isn't it?*'*

Exclusion criteria
Statements that do not hold a subjective opinion, or statements that offer a description or observation of characteristics of art, or an emotional reaction to art.

Example Text:

'He has got his hand up and his leg up*'*

'Well that's a skeleton and so is that one'

10. SEEKING KNOWLEDGE

Description
Statements in which more information or knowledge about a painting, object, artistic technique or the group is being requested.

Inclusion criteria
Any statement where PWD actively requests or seeks more information or knowledge about a piece of art, such as about the artist, the period during which the painting was painted, the characters in the painting, or the context, or information sought about artistic techniques, objects being discussed or the group itself.

Example text

"And when was it painted?"

"What is a frottage?"

Exclusion criteria
Any statements where PWD is actively requesting information about other members of the group, the facilitators, or matters pertaining to outside the gallery, rather than the paintings.

Example Text:

"How old am I?"

"You made this cup of tea?"

11. REQUESTING GUIDANCE

Description
Direct requests for guidance about what to do in the sessions.

Inclusion criteria
Any statement where PWD are directly asking for guidance or reassurance as to what to do in the sessions. These can be directed at carers, facilitators, or other members of the group.

Example Text:

"What am I supposed to do with this?"

"Shall I put that one here?"

"Where would you put his mouth?"

Exclusion criteria
Statements where PWD are not directly asking for guidance, even if they may seem slightly confused.

Example Text:

"I don't know where I am now"

"I'm confused"

12. **SHARING FACTUAL KNOWLEDGE**

Description
Statements involving learned factual knowledge about a subject, either to a carer, facilitators, or other members of the group.

Inclusion criteria
Any statements where PWD express learned factual information. This could include information about a painting's historical context, the characters in a painting, or the artist.

Example text:

'It, you slide it along the top and then you sort of pull it up and it opens the letter'

'Yes it was bombed in a, a lot of different places were raised to the ground'

Exclusion criteria
Statements where information expressed pertains to PWD's personal life, rather than learned general knowledge about a subject.

Example Text:

'Those pictures are mostly in our suburban garden, in London'

Appendix N: Inter Rater Reliability Calculations

		Independent Rater													
Researcher		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**TOTAL**
	1	21	0	0	0	0	0	0	0	0	0	0	0	2	23
	2	0	47	0	0	0	0	0	0	0	0	0	0	0	47
	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	8	0	0	0	0	0	0	0	0	8
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	5	0	0	0	0	0	0	5
	8	0	0	0	0	0	0	0	26	0	0	0	0	1	27
	9	0	0	0	0	0	0	0	0	36	0	0	0	0	36
	10	0	0	0	0	0	0	0	0	0	17	0	0	0	17
	11	0	0	0	0	0	0	0	0	0	0	13	0	0	13
	12	0	0	0	0	0	0	0	0	0	0	0	3	1	4
	13	1	0	0	0	0	0	0	1	2	0	0	0	218	222
	TOTAL	22	47	3	0	8	0	5	27	38	17	13	3	222	405

1- Disfluency
2- Semantic Clustering
3- Lifetime Memory
4- Memory of Previous session
5- Emotional reaction to art
6- Emotional reaction to group
7- Personal descriptive information
8- Factual observations of art
9- Opinion of art
10- Seeking knowledge
11- Requesting guidance
12- Sharing factual knowledge
13- Data not coded

Calculation of "proportion agreement, observed" (PA_O)

PA_O = Total of agreement/n

PA_O = 397/405 = 0.98 (98% agreement)

Calculation of PA e:

$PA_E = \sum P_{i2}$ (where P_i = each joint marginal proportion)

Code	N for Researcher	N for Independent Rater	Product of marginals (pm_i): Researcher x Independent rater	Sum of marginals: Researcher + Independent rater	Joint marginal proportions Pi
1	22	23	506	45	45/810= 0.06
2	47	47	2209	94	94/810= 0.12
3	3	3	9	6	6/810= 0.01
4	0	0	0	0	0/810= 0
5	8	8	64	16	16/810= 0.02
6	0	0	0	0	0/810= 0
7	5	5	25	10	10/810= 0.01
8	27	27	729	54	54/810= 0.07
9	36	38	1368	74	74/810= 0.09
10	17	17	289	34	34/810= 0.04
11	13	13	169	26	26/810= 0.03
12	4	3	12	7	7/810= 0.01
13	222	222	49284	444	444/810= 0.55

Cohen's kappa $= \frac{PA_O - PA_E}{1 - PA_E}$ where $PA_E = (1 - n_2)(\Sigma\ pm_i)$

n = number of units coded in common by coders
pm_i = each product of marginals

So $PA_E = (1/397^2)$ (506+2209+9+0+64+0+25+729+1368+289+169+12+49284)

= (1/157609)(54664)

= 0.35

Cohen's kappa $= \frac{PA_O - PA_E}{1 - PA_E}$

$= \frac{0.98 - 0.35}{1 - 0.35}$

$= \frac{0.63}{0.65}$

= 0.97

Appendix O: Summary of Research Findings for Submission to Ethics Panel

The impact of art-viewing and making on cognition in people with dementia

Dementia is a progressive disease characterised by a widespread impairment of mental functioning and in particular cognitive impairment (NICE, 2012; WHO, 2012). Previous research has suggested that arts-based interventions can have positive effects in terms of physical and mental health in people with a dementia. In particular, previous research has also illustrated findings suggesting such interventions can impact specifically on individual's cognition.

This study evaluated the impact of two, eight week art-gallery based programmes, consisting of both art-viewing and art-making for people with dementia and their carers. Sessions were audio recorded, transcribed and analysed using content analysis. The study sought to assess the impact of the intervention on cognitive skills including verbal fluency and memory in those with dementia. Findings suggested that both verbal fluency and memory, increased overall, across the 8 sessions. This is consistent with previous research findings. Verbal fluency, measured by percentages of disfluencies and semantic clustering, increased over the course of the intervention, particularly in the art-making segments of sessions. This may be due to the art-making occurring after art-viewing, allowing acclimatisation to the group, or due to the format of the art-making sessions being less formal. Examination of further codes supports the hypothesis that the art-making segments may have been experienced as less formal and provided more opportunity for social links with others, evidenced by increases in personal information being provided in later sessions. In terms of

memory, both lifetime memory and memories of previous sessions, were found to be stimulated over the course of the sessions.

As well as the impact on verbal fluency and memory, the study found that knowledge seeking overall increased across sessions, suggesting sustained interest in the art. It was also found that requesting guidance, primarily in the art-making segment of intervention, decreased over time, arguably suggesting participants had retained gained skills and confidence in using art materials without assistance.

It was concluded that interventions such as these have a positive impact cognition in individuals with dementia, for whom a decline in cognitive skills is one of the most notable losses. These findings build on previous research which reported increases in memory access (MacPherson et al., 2009) and improvements communication (Kinney & Renz, 2005; Musella et al., 2009; Rosenberg, 2009).

Although this study is exploratory and has several methodological limitations which would usefully be addressed in future research, the findings provide rationale for further research in this area. The findings also have implications for clinical practice in encouraging clinicians to consider making links with local community resources and potentially facilitating the establishment of interventions of this kind in the community for people with dementia.

Appendix P: Submission guidelines for intended journal

Section A: Aging & Mental Health (Impact Factor 1.677)

General and Style Guidelines taken from:
http://www.tandfonline.com/action/authorSubmission?journalCode=camh20&page=instructions#mp_style

General Guidelines

Manuscripts are accepted only in English. Any consistent spelling and punctuation styles may be used. Please use single quotation marks, except where 'a quotation is "within" a quotation'. Long quotations of 40 words or more should be indented without quotation marks.

Manuscripts may be in the form of (i) regular articles not usually exceeding **5,000 words** (under special circumstances, the Editors will consider articles up to 10,000 words), or (ii) short reports not exceeding **2,000 words**. These word limits **exclude** references and tables. Manuscripts that greatly exceed this will be critically reviewed with respect to length. Authors should include a word count with their manuscript.

Manuscripts should be compiled in the following order: title page (including Acknowledgments as well as Funding and grant-awarding bodies); abstract; keywords; main text; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

Please supply all details required by any funding and grant-awarding bodies as an Acknowledgement on the title page of the manuscript, in a separate Funding paragraph, as follows:
For single agency grants :

This work was supported by the <Funding Agency> under Grant <number xxxx>.

For multiple agency grants:

This work was supported by the <Funding Agency #1> under Grant <number xxxx>; <Funding Agency #2> under Grant <number xxxx>; and <Funding Agency #3> under Grant <number xxxx>.

Structured Abstracts of not more than 250 words are required for all manuscripts submitted. The abstract should be arranged as follows: Title of manuscript; name of journal; abstract text containing the following headings: Objectives, Method, Results, and Conclusion.

Each manuscript should have 3 to 5 keywords .

Search engine optimization (SEO) is a means of making your article more visible to anyone who might be looking for it. Please consult our guidance here .

Section headings should be concise. The text should normally be divided into sections with the headings Introduction, Methods, Results, and Discussion. Long articles may need subheadings within some sections to clarify their content.

All authors of a manuscript should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page of the manuscript. One author should be identified as the corresponding author. Please give the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after the manuscript is accepted. Please note that the email address of the corresponding author will normally be displayed in the article PDF (depending on the journal style) and the online article.

All persons who have a reasonable claim to authorship must be named in the manuscript as co-authors; the corresponding author must be authorized by all co-authors to act as an agent on their behalf in all matters pertaining to publication of the manuscript, and the order of names should be agreed by all authors.

Biographical notes on contributors are not required for this journal.

Authors must also incorporate a Disclosure Statement which will acknowledge any financial interest or benefit they have arising from the direct applications of their research.

For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms must not be used.

Authors must adhere to SI units . Units are not italicised.

When using a word which is or is asserted to be a proprietary term or trade mark, authors must use the symbol ® or TM.

Authors must not embed equations or image files within their manuscript.

Style Guidelines

Running heads	(verso) J. Smith and P. Jones or J. Smith et al. if 3 or more authors. If J.B. Smith then initials are closed up (recto) Journal Title centred on pages
Article type (when needed)	**RESEARCH ARTICLE** bold caps, centred
Title	**Bold, first word and proper nouns cap only** centred
Authors	An Author and Another Author (initials closed up if J.B.

	Smith)
	centred
Affiliation	[a]Department, University, City, Country; [b]Department, University, City, Country
	centred
Received dates	(Received 20 July 2011; accepted 17 August 2012)
	After affiliation, centred
Abstract	Text smaller, indented both sides
	centred
Keywords	**Keywords:** word; another word; lower case except names
	Position aligned with abstract, same size as abstract
Correspondence details	Given as footnote on page 1*
	*Corresponding author. Email: xxxxxxx
	ranged left, no indent. Postal address not included in footnote.
	If there is only one author, use *Email: xxxxxxx
Headings	A. **Bold initial cap only**
	B. ***Bold italic initial cap only***
	C. *Italic initial cap only*
	D. *Italic initial cap only.* Text runs on
	All ranged left, numbers to be included if supplied, no indent below.
Paragraphs	Indented
Tables	(Table 1) in text.
	Table 1. Title initial cap only. (ranged left above table)
	Note: This is a note. (ranged left under table)
Figures	(Figure 1) in text.
	Figure 1. Caption initial cap only. (ranged left under figure)
	Note: This is a note. (ranged left under figure)

Permissions statement for third-party figure and table captions	If the rightsholder has supplied text for this purpose, use their text. Otherwise, insert the rightsholder's name within the square brackets: © [Rightsholder]. Reproduced by permission of xxx. Permission to reuse must be obtained from the rightsholder.
Displayed quotations	Indented left and right, smaller font (over 40 words, or when appropriate)
Lists	(1) for numbered lists Bullets if wanted
Equations	Equation (1) in text Centred
Acknowledgements	A heading Goes before notes, bio notes and refs Text smaller
Funding	A heading. Goes after Acknowledgements Text smaller Funding agency written out in full. Grant number in square brackets. Multiple grant numbers separated by comma and space. Agencies separated by semi-colon, e.g. This work was supported by the Wellcome Trust [grant number]. This work was supported by the Wellcome Trust [grant number],

Section B: Psychology of Aesthetics, Creativity and the Arts (Impact Factor: 1.530)

Manuscript preparation guidelines taken from **http://www.apa.org/pubs/journals/aca/**

Prepare manuscripts according to the **Publication Manual of the American Psychological Association** (6th edition). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the **Publication Manual**).

Review APA's Checklist for Manuscript Submission before submitting your article (See Below).

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the Manual.

Format

Have you checked the journal's website for instructions to authors regarding specific formatting requirements for submission (8.03)?

Is the entire manuscript—including quotations, references, author note, content footnotes, and figure captions—double-spaced (8.03)? Is the manuscript neatly prepared (8.03)?

Are the margins at least 1 in. (2.54 cm; 8.03)?

Are the title page, abstract, references, appendices, content footnotes, tables, and figures on separate pages (with only one table or figure per page)? Are the figure captions on the same page as the figures? Are manuscript elements ordered in sequence, with the text pages between the abstract and the references (8.03)?

Are all pages numbered in sequence, starting with the title page (8.03)?

Title Page and Abstract

Is the title no more than 12 words (2.01)?

Does the byline reflect the institution or institutions where the work was conducted (2.02)?

Does the title page include the running head, article title, byline, and author note (8.03)? (Note, however, that some publishers prefer that you include author identification information only in the cover letter. Check with your publisher and follow the recommended format.)

Does the abstract range between 150 and 250 words (2.04)? (Note, however, that the abstract word limit changes periodically. Check APA Journals Manuscript Submission Instructions for All Authors for updates to the APA abstract word limit.)

Paragraphs and Headings

Is each paragraph longer than a single sentence but not longer than one manuscript page (3.08)?

Do the levels of headings accurately reflect the organization of the paper (3.02–3.03)?

Do all headings of the same level appear in the same format (3.02–3.03)?

Abbreviations

Are unnecessary abbreviations eliminated and necessary ones explained (4.22–4.23)?

Are abbreviations in tables and figures explained in the table notes and figure captions or legends (4.23)?

Mathematics and Statistics

Are Greek letters and all but the most common mathematical symbols identified on the manuscript (4.45, 4.49)?

Are all non-Greek letters that are used as statistical symbols for algebraic variables in italics (4.45)?

Units of Measurement

Are metric equivalents for all nonmetric units provided (except measurements of time, which have no metric equivalents; see 4.39)?

Are all metric and nonmetric units with numeric values (except some measurements of time) abbreviated (4.27, 4.40)?

References

Are references cited both in text and in the reference list (6.11–6.21)?

Do the text citations and reference list entries agree both in spelling and in date (6.11–6.21)?

Are journal titles in the reference list spelled out fully (6.29)?

Are the references (both in the parenthetical text citations and in the reference list) ordered alphabetically by the authors' surnames (6.16, 6.25)?

Are inclusive page numbers for all articles or chapters in books provided in the reference list (7.01, 7.02)?

Are references to studies included in your meta-analysis preceded by an asterisk (6.26)?

Notes and Footnotes

Is the departmental affiliation given for each author in the author note (2.03)?

Does the author note include both the author's current affiliation if it is different from the byline affiliation and a current address for correspondence (2.03)?

Does the author note disclose special circumstances about the article (portions presented at a meeting, student paper as basis for the article, report of a longitudinal study, relationship that may be perceived as a conflict of interest; 2.03)?

In the text, are all footnotes indicated, and are footnote numbers correctly located (2.12)?

Tables and Figures

Does every table column, including the stub column, have a heading (5.13, 5.19)?

Have all vertical table rules been omitted (5.19)?

Are all tables referred to in text (5.19)?

Are the elements in the figures large enough to remain legible after the figure has been reduced to the width of a journal column or page (5.22, 5.25)?

Is lettering in a figure no smaller than 8 points and no larger than 14 points (5.25)?

Are the figures being submitted in a file format acceptable to the publisher (5.30)?

Has the figure been prepared at a resolution sufficient to produce a high-quality image (5.25)?

Are all figures numbered consecutively with Arabic numerals (5.30)?

Are all figures and tables mentioned in the text and numbered in the order in which they are mentioned (5.05)?

Copyright and Quotations

Is written permission to use previously published text; test; or portions of tests, tables, or figures enclosed with the manuscript (6.10) See Permissions Alert (PDF, 13KB) for more information.

Are page or paragraph numbers provided in text for all quotations (6.03, 6.05)?

Submitting the Manuscript

Is the journal editor's contact information current (8.03)?

Is a cover letter included with the manuscript?

Does the letter

include the author's postal address, e-mail address, telephone number, and fax number for future correspondence?

state that the manuscript is original, not previously published, and not under concurrent consideration elsewhere?

inform the journal editor of the existence of any similar published manuscripts written by the author (8.03, Figure 8.1)?

mention any supplemental material you are submitting for the online version of your article?