

ATOL: Art Therapy OnLine

Processing Emotions and Memorising Coursework through Memory Drawing

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Abstract

Memory of drawings and words were compared for 134 subjects in a quantitative research. Nine weeks after the initial encoding the median amount of recalled drawings was five times higher, than for written words. There was no difference between memorised drawings and words when recalling took place right after encoding. Qualitative case studies were also conducted which demonstrated the way in which memory drawing can facilitate coursework learning. The memory drawing and the therapeutic process indicated that sensitive emotional material can be brought up and processed through such drawings. Art therapy theories and methods were found to be important in terms of memory drawing in order to explore, understand and explain the function of memory drawing for processing emotions and facilitating memory of coursework. An art therapy framework was also found to be important for considering the ethics and drawing boundaries for the memory drawing method in order to create safe spaces for students and clients who engage in creating memory drawings within therapy or education.

Keywords

Memory, drawing, art educational therapy (AET), trauma, coursework learning.

Introduction

A research on 'Memory Drawing' is presented in this article, which is a part of a PhD study, conducted in 1999-2000 in which Art Educational Therapy (AET) was created (Ottarsdottir, 2005, 2010b, 2010a, 2018, in press). Five children who had experienced stress and/or trauma and had specific learning difficulties participated in the qualitative case study part of the research. The aim of the research was to design, study and test a therapeutic method, which would facilitate coursework learning, including memorising coursework, and enhance the emotional well-being of the client. Theories of art therapy (e.g. Edwards, 2004) and educational psychotherapy (e.g. Best, 2014) contributed to the theoretical framework of AET.

A quantitative research on memory drawing was also conducted with 134 subjects. The aim of that part of the research was to investigate the effectiveness of drawing, compared to writing, in facilitating memory over short and long time periods.

The aims of this research paper are to:

- Introduce the qualitative and quantitative memory drawing research, including presenting the findings about the effectiveness of drawing, compared to writing, in facilitating memory over differing time frames as well as to demonstrate the way in which sensitive emotional material can be brought up and processed through such memory drawings.
- Contextualize the memory drawing research within the literature on related researches, methods and theories.
- Provide examples of the application of the memory drawing method.
- Consider and explore the complexities of the therapeutic and educational process included in memory drawing, when applied within therapy or education, in light of theories and methods of AET, art therapy and educational psychotherapy.
- Emphasise and rationalise the importance of a safe enough space for making memory drawings, especially within the classroom, with vulnerable pupils, who have experienced stress and/or trauma and have lack of support

in their lives.

Memory Drawing

'Memory Drawing' is an umbrella term for pictures drawn with the aim of memorising facts or methods in relation to coursework learning. For example, memorising spelling words (Ottarsdottir, 2010b, 2010a), translating foreign words as explained later in this article, and memorising various facts, from subjects such as geography (Ottarsdottir, in press). The memory drawings can include not only pictures but also words and text can be integrated into the pictorial material in various ways (Ottarsdottir, 2010b). Along with memorising facts the creation of memory drawings can facilitate the processing of emotions, related to memories and difficult experiences, in a similar way to how drawn images are commonly interpreted within the art therapy setting. Both the picture versus word part of the memory drawing (Ottarsdottir, 2010b) and the therapeutic versus coursework material included (Ottarsdottir, 2010a), are components, which are present in varying degrees within each memory drawing.

The Research Context

Since conducting the research in the year 2000 (Ottarsdottir, 2005, 2010b, 2010a, 2018, in press) I have lived and worked in Iceland, where at the present time training to become a qualified art therapist is unavailable and to the best of my knowledge no art therapist is conducting research apart from myself. This creates, at the moment, a shortage of professional contexts for art therapy in Iceland. Partly, due to the shortage of such professional contexts I decided to postpone introducing my research findings on memory drawing following conducting the research. However, since the year 2013 I have developed a curriculum and taught art therapy foundation courses at Universities in Iceland and this has provided further knowledge about art therapy, further stimulus and a more stable and fertile ground to present my memory drawing research.

In 2016, Wammes, Meade, & Fernandes (2016) published their research findings, comparing memory of written and drawn words. This research, the

introduction of their findings and the changing professional context for art therapy in Iceland has lead me to reconsider the decision to postpone introducing the findings about my memory drawing research. One of the reasons for presenting the findings now is that there are important components of art therapy theories and methods included in my research, which do not appear in Wammes et al. (2016) research.

Literature Review

The research consists of two separate parts, which overlap in the memory drawing; a quantitative research about memorisation through drawing versus writing, which relates largely to psychology and education, and a qualitative research which is mostly about therapy and processing emotions through memory drawing. The following reviewed literature corresponds to these two parts of the research.

Memory of mental images

The three areas – to draw an image, to visualize a mental image and to observe a picture – are related in that they all have to do with some sort of an image applied as a memory aid. Memory drawing includes these three processes; the image is drawn, looked at as a picture, and then visualized in one's mind in the recalling process.

The Ancient Greeks created the 'method of loci', which is to visualize in one's mind what one wants to remember in association with a familiar place. Today the method of loci is applied as a mnemonic strategy for a variety of challenging memorisation tasks (e.g. Raz et al., 2009). Recent research has shown that the method of loci facilitates coursework learning such as learning vocabulary (Ahour & Berenji, 2015). Therapeutically oriented research has also been conducted in relation to memorising self-affirming autobiographical memories through the method of loci (Dalglish et al., 2013).

Picture superiority effect

Study on memory of observed pictures was rare until Roger Shepard (1967) completed a research, which compared memory for words, sentences and

pictures. The subjects were 98% accurate in recognizing pictures, 88% for recognizing sentences and 90% for recognizing words. The 'picture superiority effect', which is the term for the effectiveness of memorisation through pictures, has been documented further through a variety of research (Boldini, Russo, Punia, & Avons, 2007; Groninger, Groninger, & Stiens, 1995; Hockley, 2008; Kinjo & Snodgrass, 2000; Nelson & Vu, 2010; Richardson, 1980; Stenberg, Radeborg, & Hedman, 1995; Vaidya & Gabrieli, 2000; Waddill & McDaniel, 1992; Weldon, Roediger, & Challis, 1989).

The integration of verbal and non-verbal functions in memorisation of pictures has been named 'dual-code theory' and refers to pictures being more likely than words to be encoded both visually and verbally. This is claimed to contribute to the effectiveness of pictures as a memory aid (Paivio, 1991, 2014; Paivio & Csapo, 1973). According to Hockley (2008) the different explanations for the contribution of pictures to aid memory are in agreement about pictures being more easily remembered than words because they are more distinctive, elaborate or meaningful. I agree that pictures can be more meaningful than words and I claim that a memory drawing is a more effective aid to memory than an observed picture, because the drawing links to a deeper personal meaning than an observed picture. The personal, creative component of memory drawing and the relationship between drawing, remembering and feeling is further explored in this article in the context of art therapy theories and methods.

Researching drawing for memory

Paivio & Csapo (1973) conducted a study on whether the influential factor in the picture superior effect is due to dual-coding or imagery and they unexpectedly found, among other things, that drawings were better remembered than words in the shorter-term, or soon after encoding. In order to test whether the memorisation of imagery is the main attribute to the picture superiority effect rather than the dual-coding factor they devised a picture-draw, word-draw and word-word experiment. Subjects were shown pictures or words, which they were to draw or write for encoding. The findings showed that more than double the amount of words was recalled for the picture-draw

and word-draw groups in comparison to the word-write group. The debate about whether the visual attribute or the dual-coding function was dominant in memorisation of pictures overshadowed the findings, which showed the effectiveness of drawing for memorising in comparison to writing.

The effectiveness of drawing in comparison to writing did not receive any further attention until I conducted the memory drawing research in the year 2000 on memory of drawing over short and long time periods. Recently Wammes et al., (2016) conducted research on shorter-term memory of written words compared to drawings. Drawn words were more easily recalled, in the shorter term, than written words in Wammes et al., (2016) research but unlike my 2000 research they did not test for longer-term memory. To the best of my knowledge, no research, apart from the quantitative memory drawing presented in this paper, has been conducted before for longer term memory; that is testing recall three and nine weeks after the original memorisation.

Wammes (2017) presented findings, from his further study about the reason why drawing serves as a successful memory aid, by comparing memory of words through the following tasks: drawing according to the meaning of a word (draw), drawing the meaning of the word while the trace is invisible on the screen (blind, motor element), tracing an image of what the word represents while the original image is fading (trace), creating an internal visual image of the word's meaning (imagine), viewing a picture of what the word represents (view), and lastly, writing the word out repeatedly (write). The number of words recalled from each task, greatest to least was: draw, blind, trace, imagine, view and write. The three most successful applications (draw, blind, trace) involve the physical activity of drawing of some sort. Drawn and blind have to do with creating the images from a personal point of view while tracing is less personal.

Drawing to facilitate coursework learning

Drawing for factual memory has been applied in a variety of ways for a long time, for example in mind mapping, as cited by Buzan & Buzan (1993). Wammes, Meade, & Fernandes (2017) research indicates that drawing

facilitates memory of definitions from university textbooks although it might not be the most productive way of note-taking for newly learned information. I have also researched, through case studies, the way in which children can apply memory drawing to their coursework learning (Ottarsdottir, 2005), including memorisation in relation to spelling (Ottarsdottir, 2010b, 2010a), geography (Ottarsdottir, in press), mathematics (Ottarsdottir, 2018) and Danish as introduced in the case study vignettes later in this article.

Although research regarding the limited learning task of applying drawing for memorising has shown that drawing improves memory (Andrade, 2010; Ottarsdottir, in press; Paivio & Csapo, 1973; Wammes, 2017; Wammes et al., 2016, 2017), other research findings on the wider context of applying drawing for coursework learning are more complicated and take account of a variety of learning factors and coursework subjects (Caldwell & Moore, 1991; Csikos, Sztányi, & Kelemen, 2012; Leopold & Leutner, 2012; Leutner, Leopold, & Sumfleth, 2009). For example, educational support was found to be an important factor in learning through drawing (Van Meter, Aleksic, Schwartz, & Garner, 2006) which is in line with the thinking presented in this paper, regarding the importance of contact which includes containment and emotional support, as a part of memory drawing within therapy and education.

Wammes et al. (2016) stated that it is important to find a practical technique for remembering everyday lists and/or a lecture topic. However, Quillin & Thomas (2015) claim that it is difficult to apply findings about drawing for coursework learning to classroom practice. I claim that the application of memory drawing methods might not always be simple and uncomplicated for everyone, and that there is a need for further consideration, discussion and research about these possible complications. One possible complicated scenario is that a student may get in touch with vulnerable emotions and memories through a memory drawing, which may cause acting out and consequently a discipline problem within the classroom. This situation could interfere with the student's memorisation process. Another student may also touch upon vulnerable emotions through memory drawing and instead of a safe environment the behaviour problems of the other student may cause

feelings of unsafety, which may add to the emotional difficulty brought up by the drawing and therefore possibly interfere with the memorisation process and the effectiveness of memory drawing. Consequently, I claim that memory drawing needs to be further researched and thoroughly thought through when applied with potentially vulnerable children in an educational context, especially with non-therapists.

Memory drawing from an art therapeutic perspective

An art therapy viewpoint is excluded in the above reviewed literature and research about memory, mental images, pictures, coursework learning and drawing. Wammes et al. (2016) argued that the superior effect of memory drawing can be explained by the semantic, visual and motor aspect of the drawing, where the participants create a picture through engaging in the motor action of the hand movement which leaves them with a picture that serves as a memory cue for later recall. I agree with those complex multiple reasons for the superior effect of memory drawing. However, I argue that an art therapy point of view, which is not considered by Wammes et al. (2016), is also an important aspect of the superior effect of memory drawing because of personal emotional engagement, symbolism and the drawing's relationship to the unconscious. These additional factors make the image more relevant to the person and therefore more valuable, which results in the memory of the drawing being more likely to be remembered for longer.

Because art making, and in this case drawing, has the ability to bring hitherto unconscious material into consciousness through symbolic processes it is important to consider the impact of memory drawing tasks in the classroom. This is especially true for vulnerable children and children who have experienced trauma.

Art therapy, memory drawing and trauma memories

It is claimed within the art therapy literature that making art, within a therapeutic relationship, can be helpful in processing difficult emotions relating to trauma (e.g. Appleton, 2001; Eaton, Doherty, & Widrick, 2007; Kozłowska & Hanney, 2001; Malchiodi, 1998; Meyer, 1999; Rubin, 1999). For example,

Rubin (1999) and Malchiodi (1998) claim that it is the non-verbal quality of artwork that has the potential to facilitate working through emotional trauma, including feelings for which there are no words.

Although, most researchers suggest that further research on art therapy for traumatised people is needed (Orr, 2007; Schouten, de Niet, Knipscheer, Kleber, & Hutschemaekers, 2015; van Westrhenen & Fritz, 2014), quite a few researches have indicated that art therapy is an effective treatment method for traumatized children (Eaton et al., 2007; Orr, 2007; Ottarsdottir, 2005; Schouten et al., 2015; Ugurlu, Akca, & Acarturk, 2016), adolescence (Rowe et al., 2017) and adults (Gantt & Tinnin, 2007).

Research conducted by Chapman, Morabito, Ladakakos, Schreier, & Knudson (2001) indicate that art therapy interventions for paediatric trauma patients did not reduce PTSD symptoms following art therapy but there was a reduction in acute stress symptoms. Additional research has been conducted on art making in relation to factors that can be present in PTSD, such as stress and negative mood. Bell & Robbins (2007) found that art making reduced negative mood and anxiety. Kaimal, Ray, & Muniz, (2016) found that art making resulted in lowering of cortisol levels which indicated reductions in stress. However, Keogh & Creaven, (2017) found in their study that art making did not relieve stress. These mixed findings point to the fact that the subject is complex and that many influential variables can affect the findings, such as the therapeutic relationship and containment provided while the art making takes place.

Some art therapists have claimed that traumatic memories are stored nonverbally (Gantt & Tinnin, 2009; Hass-Cohen, Clyde Findlay, Carr, & Vanderlan, 2014; Langer, 2011; Pifalo, 2007; Talwar, 2007). A general claim is also made in the art therapy literature that art can be a medium through which traumatic experiences can be recollected (Appleton, 2001; Campbell, Decker, Kruk, & Deaver, 2016; Gantt & Tinnin, 2009; Johnson, 1999; Kozlowska & Hanney, 2001; Malchiodi, 1998; Pifalo, 2007; Talwar, 2007).

There are areas of relevance, linked to the complex, sensitive and multi-layered functions of art making, with relation to memory drawing. Drawing can tap into sensitive unconscious emotional material and touch upon memories of trauma. In these cases art making, including memory drawing, may be an emotionally loaded experience. One concern is that art making within art therapy could in some cases reach too far into difficult emotional material relating to the trauma memories (Ottarsdottir, 2010b, in press). The other concern relates to how much containment is available for vulnerable children who make memory drawing within educational settings. These vital therapeutic considerations are important in applying memory drawing in the classroom where there might be a lack of consideration and training around the needs of vulnerable children, their need for empathy, containment and a sensitive understanding of how to engage with emerging images and enactments of trauma.

The psychoanalysts Laub & Podell (1995) claimed that art making may be the only medium in which some difficult trauma memories can be represented. However, the authors also claim that art making can have its limits, because 'overwhelming emptiness' may simultaneously emerge through the process. Johnson (1999) stated that some clinicians worry that the art therapies can be too stimulating or re-traumatizing. Rankin (2003) suggested task-oriented art therapy is appropriate when working with traumatised children in order to increase a sense of control. The educational psychotherapist Geddes (1999) claims that the coursework learning task can alleviate anxiety.

Laub & Podell (1995) described a dilemma in making images for the traumatised client; '...there is a request for dialogue and recollection of traumatic memories... [and] the risk that the emptiness this brings forth can become too overwhelming' (Ottarsdottir, 2010a: 148). I claim that bringing the coursework learning task into the art making within the therapy, in terms of memorising factual coursework in combination with working with memories and associated emotions, can make the process of approaching and representing trauma memories more manageable than if they are only worked with through spontaneous art making. The cognitive task involved in the

coursework can have a regulatory function in the therapy session. In other words the memory drawing in relation to coursework learning is partly seen in AET as a stepping stone towards representing, processing and integrating complex emotions relating to difficult experiences.

The aim of the memory drawing in relation to coursework learning in AET was partly to facilitate correctly memorising factual coursework but not to facilitate 'correct' remembrance of traumatic memories through art-making, as might be the aim in court cases.

Art therapy in Education

The impact of art therapy when practised with children within an educational setting has been reported since the early days of the profession (Cohen, 1975; Kramer, 1977). Art therapy in education is a growing field and claims have been made about the importance of integrating it into an educational setting (e.g. Cohen, 1975; Dalley, 1986; Karkou, 1999) and many art therapists working in education have reported on their work (e.g. Bush, 1997; Cortina & Fazel, 2015; Dalley, 1987; Fehlner, 1994; Goodall, 1991; Grossman, 1990; Harvey, 1989; Henley, 1997; Isis, Bush, Siegel, & Ventura, 2010; Moriya, 2000; Pleasant-Metcalf & Rosal, 1997; Reddick, 2008; Regev, Green-Orlovich, & Snir, 2015; Sutherland, Waldman, & Collins, 2010; Welsby, 1998; Wengrower, 2001; Wojakowski, 2017).

Several issues are discussed by art therapists in relation to art therapy in education. Firstly, bringing individual and group art therapy into schools (Dalley, 1990; Karkou, 1999) which were not originally designed for providing such practise (Siegel, 2016); secondly, integrating art therapy into classrooms (Beauregard, 2014; Harvey, 1989; Henley, 1997; Reddick, 2008; Rosal, McCulloch-Vislisel, & Neece, 1997). Thirdly, whether and how to integrate art education into art therapy and vice versa (Albert, 2010; Dickson, 2015; Waller, 1984). A subject of this paper is how to bring coursework into art therapy (Dunn-Snow, 1997; Moser, 2005; Ottarsdottir, 2010b, 2010a, 2018, in press) as well as how to integrate essential art therapy theories into classroom teaching when pupils make memory drawings.

Moser (2005) described individual art therapy work with a nine-year-old boy in a school, during which essay writing was integrated into the art therapy process. Moser claimed that the non-verbal art object served as a bridge for the boy to be able to verbalise. The art therapist was surprised at the boy's achievement when he was able to write a text at great length in response to the art object. Henley (1997) worked as a teacher and an art therapist, where the basis of the work was bibliotherapy, phototherapy and poetry therapy. Reddick, D. (2008) also worked as an art therapist within classrooms alongside the class teachers.

Gliga (2011) reported research on a program for students with special educational needs, named 'Teaching by art therapy', where photography, music and drawing were applied with the aim of improving recognition of Romanian letters. Although the therapeutic part of the program is not clearly reviewed this research indicated improvement in learning.

It is generally claimed in the literature on art therapy in education that emotional difficulties can cause specific learning difficulties (Dalley, 1987; Essex, Frostig, & Hertz, 1996; Fehlner, 1994; Glassman & Prasad, 2013; Grossman, 1990; Pleasant-Metcalf & Rosal, 1997; Reddick, 2008). As O'Brien writes, 'Learning may have been blocked by emotional distress...' (O'Brien, 2004:9). Art therapy has been brought into schools without any direct or indirect connection to coursework learning but the therapy has nevertheless been reported to have positively affected academic learning (Bush, 1997; Dalley, 1987, 1990; Deboys, Holttum, & Wright, 2017; Essex et al., 1996; Fehlner, 1994; Harvey, 1989; Pleasant-Metcalf & Rosal, 1997; Shostak et al., 1985; Wengrower, 2001).

Educational psychotherapy

Educational psychotherapy, which is a therapeutic approach for working with children who have specific learning difficulties as a consequence of emotional problems (Best, 2014; Morton, 2017), was developed through the work of Irena Caspari (Caspari, 1974; Daniels, 2017; Morton, 2017). Educational

psychotherapy uses many facets of psychodynamic approaches and attachment theory (Barrett & Trevitt 1991, Bowlby 1969, 1973), in which direct teaching is incorporated into the therapy and specific learning difficulties are observed in the context of possible underlying emotional difficulties (Caspari, 1974; Dover, 2002; Dover-Council, 1997; Morton, 2002, 2017).

Everything the child says and does in educational psychotherapy is considered a form of symbolic communication. Expressive work, such as play, educational games, reading, writing stories, drawings and expressive arts, is used in the therapy (Barrett & Trevitt, 1991; Beaumont, 2004; Caspari, 1974; Dover-Council, 1997; Dover, 2002; Greenwood, 1999).

A child's anxious attachment organisation might be replicated in the teacher-pupil relationship, which may cause specific learning difficulties (Geddes, 1999). Educational psychotherapy and AET aim to create a safe space where the child can explore and learn. This replicates an early, secure, mother-child attachment in which the child can safely explore his feelings and coursework learning (Barrett & Trevitt, 1991). Accordingly, I emphasise the importance of a safe enough space in the classroom when vulnerable pupils make memory drawings.

Casimir (2002), Greenwood (2002) and Morton (2000) claimed that 'containment' in Bion's terms (1962a; 1962b) is important when treating traumatised children in order to facilitate thinking in relation to coursework learning. Holding and containment can be achieved through the therapeutic relationship, and by the written word. Similarly, I claim that emotional containment is important while children make memory drawings in therapy and education.

Educational Psychotherapy, AET and Trauma

Memory of trauma is discussed in the educational psychotherapy literature (Casimir, 2002; Dover, 2003). The educational psychotherapist Bjørge (2003) suggested that a lack of access to trauma memories can disturb learning. Dover discussed a case study of a boy who seemed to have a '...desire to

blank out memories...' (2003: 166), stating that he was '...underachieving at school through interpersonal difficulties and through a tendency to attack memory and knowing' (2003: 167).

Trauma memories are further discussed in the educational psychotherapy literature, for example Greenwood referred to Sigmund Freud's ideas about how traumatic experiences can 'become lost to conscious memory...' (2002: 296) and the way that painful feelings can be triggered by similar experiences, causing behavioural problems in school. Morton, (2017), similarly stated that the classroom situation, for example a teacher's angry voice can stir up a memory of family violence which can result in a wish to fight or flee. Dover (2009) stated that a child may be unable to regulate emotional material linked to trauma memories and consequently environmental triggers can cause a panic for the child. This may result in unavailability, '...to process efficiently the complex cognitive information being conveyed by the teacher' (2009: 44). According to Bjørge (2003) it is possible that a block to remembering trauma may affect learning, because the child is restricted and anxious about whether such memories may pop up when playing and learning.

Education and psychotherapy come close together in educational psychotherapy. Teachers apply the educational psychotherapy theories within their classroom teaching (e.g. Dover, 2011; Lockett, 2014) and educational psychotherapists include direct teaching within the therapy sessions (e.g. Beaumont, 1991). A similar integration of art therapy and education takes place in AET with memory drawing. An art therapist's knowledge about education in relation to memory drawing and the teacher's knowledge about essential art therapy theories and methods is the glue which integrates and keep those functions of art therapy and education together within the settings of AET and education.

Methods and findings

The research is comprised of two parts, which are interlinked in terms of the memory drawing content but separate in terms of the research design. Following are descriptions of the methods and findings for each part of the

research; firstly the qualitative case study research and secondly the quantitative memory drawing research.

Case study and grounded theory research

Children who were selected for this study had specific learning difficulties and they had experienced stress and/or trauma that appeared to have caused their specific learning difficulties. The selection process involved three elements; (a) examination of school grades for children between the ages of ten and fourteen; (b) interviews with the school personnel about whether they knew of difficulties that the children, who were selected according to low school grades, had experienced; and (c) adequate ego development, sufficient family support, and no evidence of developmental disabilities, brain damage, or drugs or alcohol use.

Five children were selected, from a total of 34 pupils who were identified as having learning difficulties and having had experienced stress and/or trauma, according to (a) and (b) above. The children's parents were contacted by telephone by a school personnel and the research was briefly introduced. Following which I sent a letter and then contacted the parents by telephone in order to introduce myself and explain the study. A consent form for each child was then signed by his or her parent (Ottarsdottir, 2010b).

The research questions posed were:

1. In what way can the present study's therapeutic method (memory drawing) facilitate coursework learning, including memorising coursework, and enhance emotional well-being in children with specific learning difficulties who have experienced stress and/or trauma?
2. How can art therapy practice and theory be modified in order to facilitate coursework learning, including memorising coursework, and enhance emotional well-being in children with specific learning difficulties who have experienced stress and/or trauma?
3. In what ways can coursework learning, including memorising coursework, be integrated into art therapy through memory drawing?

A case study research method was selected in order to study the complex individual phenomena associated with the therapeutic process and research questions in relation to each child (Yin, 2014). After the data had been gathered through the case study method it was found to have many strands. Therefore, grounded theory was applied for systematically analysing the data which included drawing up categories for the investigation and building an initial theory of AET (Ottarsdottir, 2010b; Óttarsdóttir, 2013; Strauss & Corbin, 1998).

The data for the case study and grounded theory research was derived from a total of 123 therapy sessions with five children, conducted in the school year 1999-2000. The main body of the research data was gathered during and after the therapy sessions and it comprised of: artworks, documentation of coursework studied, case notes which included: what was done and said in the sessions, information on the therapeutic relationship and general well-being of the child, and therapeutic analysis of those.

In order to evaluate the impact of the therapeutic method the following psychological tests were conducted and compared from before and after therapy:

- 1) The Wechsler III IQ test (Prifitera & Saklofske, 1998),
- 2) The Child Behaviour Checklist (Achenback, 1991), and
- 3) The Attention Deficit/Hyperactivity Disorder Rating Scale-IV (AD/HDRS-IV) (Barkley, 1998).

In addition changes in school grades were compared from before and after therapy.

John: Case study

Parts of this case study have been reported in my previous publications (Ottarsdottir, 2010b, 2010a; Óttarsdóttir, 2004). In this article, I am presenting up to now unpublished material, as part of the research into the theories and methods of superior effect of memory drawing and explaining the way in which such drawings can be applied.

John was one of the five children who participated in the case study research. He was twelve years old at the time of therapy. He received therapy sessions twice a week, for 32 sessions, which included spontaneous art making, that was often integrated with coursework.

Background information

John's parents' divorced when he was eighteen months old and a few years later he experienced the illness and loss of his grandparents who he was close to. After the divorce his mother was forced to work longer hours because they had little money. John and his mother lived with his maternal grandparents after the divorce. The grandmother helped to take care of John. According to the mother, John's grandfather, who was strict, cared greatly for John and said he was an intelligent boy. Two years after the divorce John's grandfather developed cancer. When John was five years old his grandmother also developed cancer. She died when John was six, and the grandfather died when John was nine. While the grandparents were ill, the mother had to take care of them. Consequently, the mother had neither sufficient energy nor time to focus on John's care during that period. John's mother reported that John was sad when his grandparents died, but he repressed his feelings and did not cry. When the therapy began he still had an 'altar' in his room with images of his grandparents.

During John's first year when his father still lived with him they enjoyed a good relationship, according to the mother. When his parents divorced, John saw his father every other weekend. The mother commented: "John's father is not a family man but he is not a bad person... he has a warm personality... John thought that the divorce was his own fault and when he was younger, he assumed that his father would come back..." The father lived in Denmark at the time of therapy, and John saw him at Christmas when he came to Iceland. The summer before therapy John went to Denmark to visit him. John was diagnosed with dyslexia the year before therapy.

Vignettes



Figure 1

In the 27th session John reached for paper and oil pastels. He first wrote the word '*langa*' Icel. ['longing' Eng.] on the left side of the paper and '*langur*' Icel. ['long' Eng.] on the right side (Figure 1). He spontaneously made this memory drawing about words relating to a spelling rule that he had worked with earlier in the therapy parallel with working with emotional material relating to the meaning of the words.

A man with eyes, nose, ears, mouth and hair appeared on the right side of the paper. On the left he drew a group of trees within a thought balloon after which he wrote the following text in another balloon: "Mig langar í skóg með húsi og miklu sólskini alla daga." ["I long for a forest where there is a house and a lot of sun every day." Eng.]. I tried to understand what the image symbolised by asking: "What do you long for?" He replied: "Nothing comes to my mind."

He drew a line in the middle of the image, which split the longing from the person. If he longed for something, he appeared to be unaware of it, which the blocking line in the middle of the page may have represented. I considered that John possibly longed for his father who lived far away, as the word 'long' was on one side, and 'longing' on the other. Also, there are almost no woods in Iceland, but plenty in Denmark where his father lived. This longing may have been relating to both his present and past situation in terms of missing his father. Partly, they may have been pre-verbal memories and feelings from when his parents divorced and his father moved out of their home when John was eighteen months old. Also, at the time of the therapy his father was not living in Iceland and John most likely missed him. Although this did not appear to be a conscious longing, I hoped that producing the memory drawing within the therapeutic relationship, would assist John in containing and integrating his emotions and consequently facilitate his coursework learning and enhance his emotional well-being.

Following this memory drawing (Figure 1) I asked John if he would like assistance with any of his coursework. He searched in his bag for something. In the end, he picked up a Danish text. This was the first time John wanted assistance with this coursework subject. The fact that he chose Danish supported my hypothesis that the longing expressed in the image in Figure 1 had to do with his father, who lived in Denmark. First I read the text in Danish and then John read the same piece. I translated the words, which he did not understand, into Icelandic. Then he wrote the words, first in Danish and then in Icelandic. When he had translated the words he made a memory drawing about their content in order to memorise their meaning (Figure 2). While working he said: "If my dad had come to Iceland at Easter as he had planned, then he could have helped me with the Danish. He could not come because of his work. He is going to come in the summer instead."

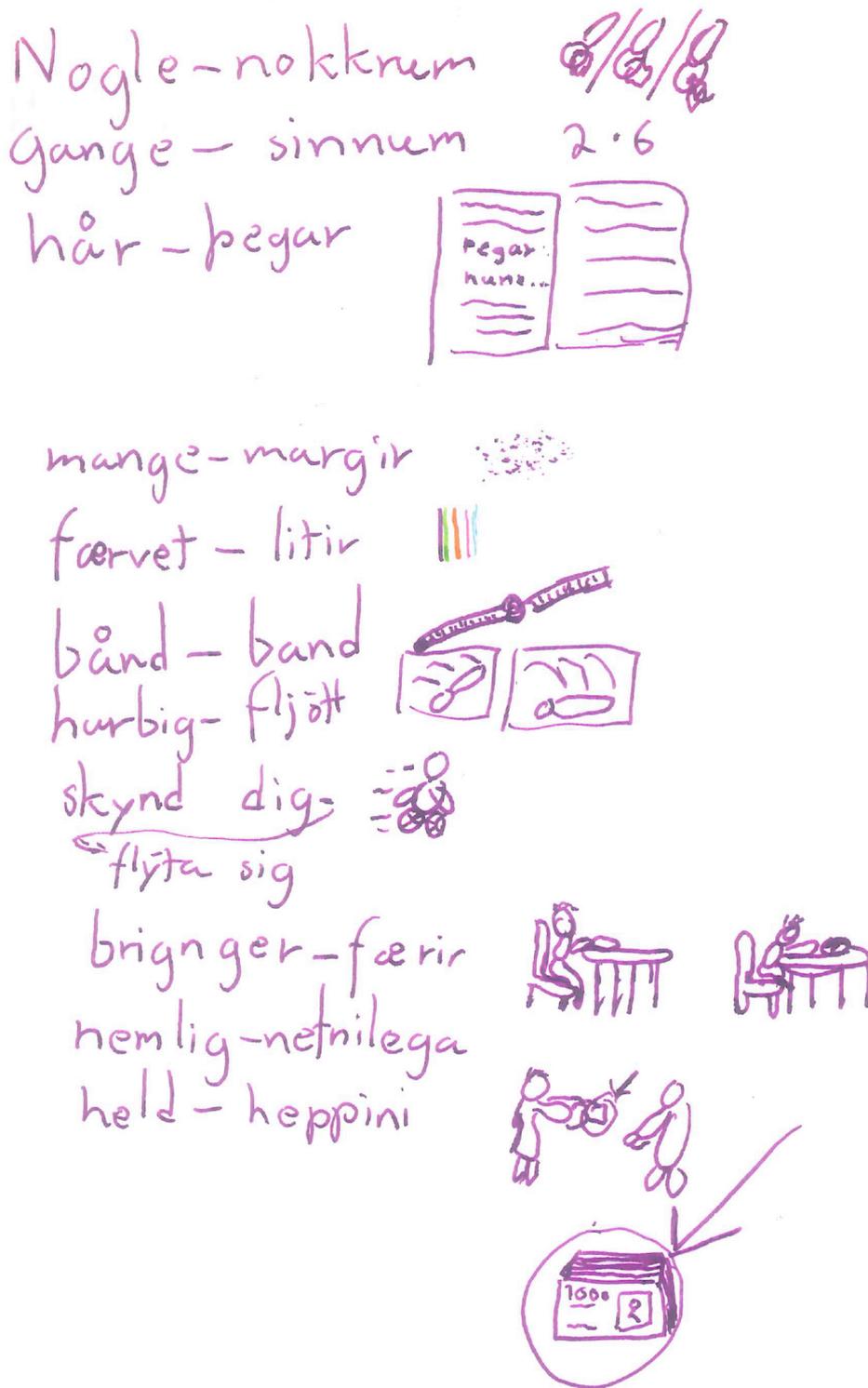


Figure 2

This comment reinforced my thought that the memory drawings made in this session and the emotional material processed related to the longing for his father who lived in Denmark. Through both drawings (Figures 1 and 2) and

through choosing to learn Danish he may have been working with current emotions regarding missing his father and at the same time processing early memories and emotions relating to his parents divorce and consequently the separation from his father when he was 18 months old.

At the end of the session John wrote the Danish words again and then he recalled the Icelandic translations by visualising the images he had drawn (Figure 2). He looked surprised and satisfied at remembering the translation of all the words.

Findings from the case study research

Using an AET approach John memorised spelling of words through memory drawing in Figure 1, while simultaneously processing feelings, which seemed to be about longings and loss of his father. He also worked on translating Danish words into Icelandic and then he drew images related to the meaning of the words (Figure 2). Later, when he had difficulties recalling the translations, he thought about his drawings, which appeared to facilitate recall. The task and the processes are both educational and therapeutic as they relate both to memorising spelling of words and translation of Danish words as well as to processing emotions and memories relating to his father who lived in Denmark.

In order to evaluate the impact of AET, comparisons were made between school grades and psychological tests administered before and after therapy. Most of John's school grades improved following therapy in comparison to those of the average child. His IQ score was sixteen points higher after therapy, which is a significant difference. According to the Attention Deficit/Hyperactivity Disorder Rating Scale-IV checklist that the mother and the teacher completed, John's concentration improved and his level of hyperactivity decreased following therapy. The Child Behaviour Checklist indicated that John's social skills improved following therapy.

Quantitative memory drawing research

This memory drawing research was conducted early in the year 2000, and it

has not been reported previously. I witnessed that the children who took part in the case study research were often surprised by how much they were able to recall of what they had drawn weeks previously in relation to their coursework learning. My observation of those children was partly the inspiration for conducting the quantitative memory drawing research.

One hundred and thirty four children 9 to 14 years old, from the same school as the children who participated in the case study, were randomly selected for participating in the quantitative memory drawing part of the research. The research question posed was:

How many drawn words in comparison to written ones are memorised in the shorter- and longer-term?

The study was conducted in an art class with four different age groups; 9-10 years, 10-11 years, 11-12 years and 13-14 years old. One group of special educational students also participated in the research (aged 14-16 years old). The number of subjects in each class varied from four to fifteen.

Test 1. Shorter-term memory drawing

- 1) The researcher explained to the subjects that she was investigating whether drawing facilitated memory.
- 2) Subjects were asked to complete the whole project individually, without saying the words out loud or interrupting others.
- 3) Each subject received a research package. Subjects who sat near to each other received different word groups. The subjects were told that they could not turn the pages before being told so. Each subject received one coloured pen, the colour being randomly chosen.
- 4) Each subject filled in information on the cover page.
- 5) The researcher explained the process as follows. The subjects would be given ten minutes to memorise the fifteen words on the next page by writing them out repeatedly as often as they liked (in some groups the first fifteen words were drawn first and then the remaining fifteen words were written down, see number 8 below).

6) As the researcher started the timer, the subjects were told to turn the cover page over and go to the page which contained a list of the first fifteen words and then follow the instructions in step number five.

7) When ten minutes had passed, the subjects were told to turn the page, place what they had written underneath the package and write on the next page what they recalled from the previous page. The subjects had no time limit for this part of the research.

8) The researcher then explained the next step. The subjects would be given ten minutes again to memorise the next fifteen words, but now they were asked to draw the content of the words (the method was reversed with subjects who had drawn during step number 6, and they wrote at this time). The subjects were told that they could repeat the drawings as often as they liked. An example of a word that was not included in any of the packages was given on the drawing board. The subjects were told to sketch the content of the word, not spend time drawing it 'artistically', but only do it well enough so that they could themselves understand what they had drawn.

9) As the researcher began timing, the subjects were instructed to turn to the next page, which listed the next fifteen words and follow the directions in step number 8.

10) When ten minutes had passed, the subjects were told to turn the page and place what they had memorised underneath the package and then draw what they could recall from the previous page. The subjects had no time limit for this exercise. The subjects were told to write underneath each picture the word that the picture described. This was to ensure that the researcher would know what they expressed by the drawing.

Test 2. Longer-term memory drawing

11) Three weeks after Test 1 the researcher met with the subjects again.

12) It was explained to the subjects that the aim was to investigate how many pictures and words they could remember over a period of time and that their word recollection of written versus drawn words would be compared.

13) Each subject received paper and a coloured pen, the colour being randomly chosen.

14) The subjects were asked to complete the whole project individually,

without saying the words out loud or interrupting others.

15) The subjects were instructed to draw or write down on a page the words memorised via drawing and/or writing three weeks previously. In order to ensure the researcher would know what was expressed by the drawing the subjects were asked to write the word or the meaning of the drawing underneath. It did not matter if they drew words that they had originally written down or vice versa.

16) Subjects were given as long as they needed for the recall.

17) When finished recalling, the subjects were allowed to see which words they had remembered/forgotten from the original test.

Test 3a and 3b. Longer-term memory drawing

18) Six weeks after Test 2 steps 11 - 17 were repeated with mostly the same groups.

Findings from the quantitative memory drawing research

Because the distribution of scores was not normal, but skewed to the left, the medians, instead of means were used in the analysis.

The median Chart 1 and Table 1 show the results of the research, which are described in more detail below. Numbers at the top of the columns in Chart 1 show medians of remembered words.

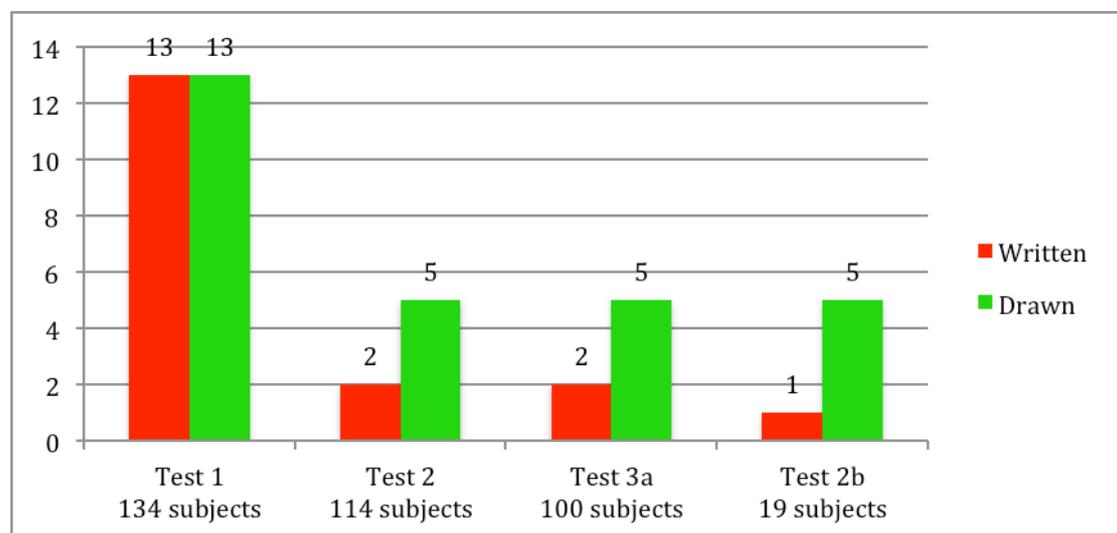


Chart 1: Medians of recalled words and drawings. Test 1: Recall right after memorisation. Test 2: Recall three weeks after Test 1. Test 3a: Recall nine weeks after Test 1, with recall in Test 2. Test 3b: Recall nine weeks after Test 1, without recall in Test 2.

	N	Minimum	Maximum	Percentiles		
				25th	50th (Median)	75th
Drawing Test 1	134	2	15	10.00	13.00	14.00
Writing Test 1	134	3	15	11.00	13.00	15.00
Drawing Test 2	114	0	12	4.00	5.00	7.00
Writing Test 2	114	0	12	0	2.00	4.00
Drawing Test 3a	100	0	12	3.00	5.00	7.00
Writing Test 3a	100	0	9	.00	2.00	4.00
Drawing Test 3b	19	0	13	4.00	5.00	7.00
Writing Test 3b	19	0	7	.00	1.00	3.00

Table 1. Descriptive statistic for Tests 1, 2, 3a and 3b.

One hundred and thirty-four subjects conducted Test 1 right after memorisation (steps 1-10). The median of recalled words was thirteen drawn words and thirteen written words.

Of the 134 subjects finishing Test 1, 114 subsequently completed Test 2, three weeks after original memorisation (steps 11-17). Twenty subjects did not participate in Test 2 because they were absent due to illness or other reasons. The median of recalled words for Test 2 was five drawn and two written words.

Of the 114 subjects finishing Tests 1 and 2, 100 completed Test 3a nine weeks after the initial memorisation with recall in test 2 (step 18). The median of their recalled words was five drawn and two written words.

Of the 134 subjects finishing Test 1, nineteen subjects did not complete Test 2 (steps 11-18) but did undergo Test 3b (step 18). That meant that there was no reminding experienced between Test 1 and Test 3b and these subjects recalled words/drawings, which they had memorised a whole nine weeks earlier. For those subjects, the median of recall was five drawn words and one written word.

The quantitative memory drawing research shows that drawing images, compared to writing, facilitates longer-term memory. There was no difference between applying drawing and writing as a shorter-term memory aid. The median of recalled drawn words, nine weeks after the original memorisation, was five out of fifteen words, but the median of recalled written words for the same time interval was only one out of fifteen words. That is the quantitative memory drawing research showed that, when recalled 9 weeks after the original memorisation, the median of recalled drawings was five times greater than for written words.

Discussion

Wammes et al. (2016) claimed that semantic, visual and motor aspect of drawing causes it to be a good memory facilitator. However, they excluded the art therapeutic view that drawing can touch upon personal memories, experiences and emotions, which I claim is partly the reason why drawing facilitates memory. I hypothesize that, in addition to Wammes et al. explanations, the following interrelated functions account for drawings being more successfully memorised than words in the longer-term. Firstly, the symbolism of the drawing may have the potential to reach deeper into the conscious and unconscious of the drawer than writing, as the language of the unconscious is often presented in symbolic pictorial images. Secondly, the longer-time memory factor requires that the information be kept for a long period. The link between the symbolism of the drawing and conscious /

unconscious personal meaning may make it more valuable and meaningful for the person than the written material and therefore more likely to be retained for longer periods.

Tracing is shown by Wammes (2017) as being less successful for memorisation than drawing an image even when the image is drawn blindly, which indicates that the creation of a personal image is an important part of the effectiveness of memory drawing. This finding supports my theory, that the effectiveness of memory drawing is partly due to it being created in relation to each person's inner life. For these same reasons we need to consider the ethical questions about the context and safety where the memory drawings are made as the drawing process may touch upon vulnerable personal feelings.

I propose that art therapy theories and methods are important in relation to memory drawing in two ways. One is to explain and understand the function of memory drawing and the reason why drawing is an effective memory aid as described above. The second is the provision of a convenient framework, setting, ethics and boundaries for memory drawing especially for non therapeutically trained educational workers. I claim that because sensitive emotional and sometimes unconscious processes may be present in memory drawing, the facilitator of memory drawings needs to be informed about key art therapy theories and methods when using memory drawing outside the safety of the therapeutic relationship. This is specifically so when working with vulnerable children in an educational setting (Ottarsdottir, in press).

In the case of John we saw that his drawing and choice of coursework to study in therapy may have related to his longing for his father, which appeared to include sensitive and possibly unconscious and pre-verbal memories and emotions relating to his parents' divorce and his separation from his father. Through the memory drawing he made (Figure 1), which included memorising spelling of the words, he may have been coming to terms with those feelings which seemed partly unconscious and split off: this was indicated by the splitting line in the middle of the page and John's inability

to think of anybody he longed for when asked to by the therapist. John also chose to study and draw about 'Danish' (Figure 2) while his father lived in Denmark and John saw him rarely. John's choices of coursework subjects, and his memory drawings (Figures 1 and 2), may have been his way of expressing and processing vulnerable feelings relating to his situation at the time of therapy and those emotions may also have related to memories back to the pre-verbal time when he was 18 months old.

Through the vignettes of this case study we can see the way in which memory drawing can be a complex phenomenon that includes conscious and unconscious elements. Memory drawing provides an opportunity to access and process emotions and defences that may be inhibiting coursework learning while simultaneously memorising coursework through the effective memory drawing approach.

Conclusion

The qualitative case study indicated that memory drawing is an effective method to process emotional material and to memorise coursework. We have seen in the quantitative memory drawing research that drawings are a powerful tool for memorising in the longer term, in so much as the median amount of recalled drawn words was five times higher than for the written ones, when recalled 9 weeks after original memorisation. If drawings are such powerful tools for facilitating longer-term memory and for accessing and processing vulnerable emotions and memories, as the research has shown, then the art therapy point of view regarding the unconscious, containment, empathy, therapeutic relationship, symbolization of drawings and safety is important when working with memory drawings.

There is certain limitation imbedded in the findings of the research in terms of its practical application within the therapeutic and educational communities, because developing the way in which memory drawing can be brought into education, art therapy and other therapeutic methods is at its beginning phase. Although most children in classrooms will be safe to apply memory drawing to their coursework learning, a question arises concerning vulnerable

children regarding sensitive emotional material that can emerge through such drawing. Further research is needed into the practice of memory drawing along with a need for developing a curriculum for continuing education as well as for teaching within university education for emerging teachers and therapists of the future.

Biography

Dr Unnur Ottarsdottir is an art therapist, artist and teacher. She has practised art therapy in private practice and in a variety of organizations, including schools, since 1991. She has also taught children at various ages as a school teacher and a special education teacher in schools in Iceland. Unnur received her MA in art therapy from Pratt Institute, New York, in 1991, and PhD degree from the University of Hertfordshire, England, in 2006. She also has a BEd degree in teaching from the Iceland University of Education. Unnur has been a part-time art therapy teacher at the Iceland University of the Arts since 2014 and at the continuing education department of the University of Akureyri since 2013. She has also taught art therapy at the University of Iceland (continuing education programme), the Art Therapy Association of Romania and the University of Hertfordshire. Unnur is a practising researcher at the Reykjavik Academy and she has written articles and book chapters about art therapy in education and the methodology of Grounded Theory. Her research interests include: art therapy in education for children with specific learning difficulties who have experienced trauma; and art making as a therapeutic and learning approach, which includes drawing for memorisation and emotional processing. Unnur has given lectures on those topics in Iceland and worldwide.

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