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THE IMPACT OF TWO-DIMENSIONAL VERSUS THREE-DIMENSIONAL ART THERPAY ON LOCUS OF CONTROL IN SPECIAL NEEDS CHILDREN IN SOUTH KOREA

By

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Children with special needs often have a tendency to be externally oriented because of their accumulated failure experiences. Accordingly, when children enjoy successful experiences through art making, they may be more likely to feel a sense of control and have confidence in their own abilities The purpose of this study was to identify differences in the impact of two-dimensional (2D) versus three-dimensional (3D) art materials on LOC in South Korean elementary school children with special needs. This study compares the effects of 2D and 3D clay-based art materials in art therapy on LOC in special needs children in group art therapy in South Korea.

This mixed methods study employed a quantitative pre and post-test control group design with a qualitative component. Fifteen children with special needs in a South Korean elementary school were divided into three groups using: (1) 2D art media only, (2) 3D clay-based art media only, and (3) no artistic intervention. The two treatment groups underwent 10 sessions of art therapy. The age of the15 participants ranged from 7-12 years. The *Stanford Preschool Internal-External* Scale (Mischel, Zeiss, and Zeiss, 1974) was utilized for both the pre- and posttests. The One-way ANOVA, Shapiro-Wilk Statistic, post hoc test (Student-Newman-Keuls, Duncan, and Keuky HSD test), paired samples test, and Wilcoxon signed rank test were used for quantitative analysis. The result of the quantitative and qualitative data indicate that both the 2D group and 3D group showed an increased internal LOC score; however, the 3D group showed a more significant change when analyzing the data using the post-hoc test (SNK and Duncan). The results supported the use of clay-based 3D art media in special needs children group art therapy programs.

CHAPTER ONE

INTRODUCTION

Children's art is a major area of study in education and psychology. Many researchers believe that art is an important way for children to express their emotions and that the characteristics of their artwork can reflect psychological states. Art making provides a means by which children can explore themselves and their world (Hanson, 2013; Lowenfeld, 1987; Rubin, 1978, 1999). Art making also allows children to create in a spontaneous way, free of social concerns such as courtesy or consideration of others (Malchiodi, 1998). Malchiodi advises art therapists to be aware that children's art derives from three major motivations-memory, imagination, and present life-and thus creates a pathway to understanding children's deeper issues and feelings.

The sensory, tactile features of art materials, especially soft materials like clay, are conductive to children's expression of feelings. Further, evidence suggests that clay induces a restful state, increases self-control, and reduces defensive behaviors (Sholt & Gavron, 2004). Thus, clay may be a powerful medium for art therapists to use with all children, and special needs children in particular. This study explores the effectiveness of clay-based three-dimensional (3D) art materials as an art therapy medium for children with special needs.

This chapter offers an introduction to this study of the impact of two-dimensional (2D) versus three-dimensional (3D) art therapy on locus of control among special needs children engaged in art therapy in South Korea. The chapter contains the background to the study, statement of the problem, and purpose of the study, as well as the research questions and a brief

description of the research methods used to address them. Finally, the chapter provides potential limitations to the study and definitions of important terms.

Locus of Control in Special Needs Children

Special needs children may have intellectual disabilities, learning disabilities, emotional disabilities, linguistic impairment, visual impairment, hearing impairment, and/or have autistic behaviors. They may be physically and/or mentally underdeveloped and additionally, may lack a desire to learn and achieve specific outcomes using their abilities (Smith, Polloway, Patton & Dowdy, 2008). In addition, they may lack self-expression and sociability (Attanasio, 2003) and struggle with feelings of discouragement, or even rage (Sin & Choi, 2010). In fact, such negative feelings have been shown to be one of the underlying causes of self-harm and suicide in special needs children (Min, 2006).

In school settings, special needs children who experience repeated failure may develop a sense of learned helplessness. Maier and Seligman (1976) explained this process: "When events are uncontrollable the organism learns that its behavior and outcomes are independent, and this learning produces the motivational, cognitive, and emotional effects of uncontrollability" (p. 3). Dweck (1975) noted that three independent factors—the laboratory procedure of uncontrollability, the cognitive set induced by chance instructions, and externality—each produced a learned helplessness effect. The concept of learned helplessness is related to the concept of locus of control (LOC) in that learned helplessness is about an idea when a person has learned to act as if they are helpless even though when they actually possess the power of control over their events or the ability to change the situation or outcome. In this reason, some psychologists believe that externals are more likely to develop learned helplessness than internals (Hiroto, 1974).

LOC is a psychological theory that concerns beliefs about individuals' origins of control and reinforcement of their events that affect them. LOC is represented as a continuum ranging from internal to external LOC. Individuals with more of an internal LOC believe that the outcomes of events in their lives originate from their own behavior or abilities, and this belief is self-reinforcing. On the other hand, those with an external LOC believe that external sources or others are responsible for the outcomes of events in their lives, and this belief leads to the need for reinforcement from others to continue to work (Rastegar & Heidari, 2011). Because of the parental acceptance, relationship with their peers, personal and social limitation, children with special need suffer trouble to develop internal LOC rather than external LOC (Wall, 2011).

Measuring Locus of Control in Children

Bialer (1961), the developer of an early LOC scale for children, explained that when children shift the conceptualization of LOC from external to internal, they can categorize events from pleasant and unpleasant into the terms of success and failure. For children with intellectual disabilities (ID), the ability to conceptualize success and failure develops more slowly than typical children. He also suggested that although the qualitative development of children with ID may not differ from children who develop typically, they will be chronologically older than their typical peers at any given level Some studies have indicated that LOC grows more internal up to about middle age (Schultz & Schultz, 2005), but others have not found significant differences in LOC by age (Lee, 2004; Park & Lee, 1982). Some researchers have found that people in collectivist cultures display a more external LOC than those in individualistic cultures (Hofstede, 1991; Mueller & Thomas, 2000). Further, many have suggested that children with disabilities have a more external LOC than typical children (Shogren, Bovaird, Palmer, & Wehmeyer, 2010; Wehmeyer, 1993; Wehmeyer & Kelchner, 1996).

The concept of LOC has generated extensive research and the development of many scales measuring LOC. The first of these, which remains widely in use, is the *Rotter Internal-External Locus of Control Scale* (Rotter, 1966). Other early measures include the Levenson IPC Scale (Levenson, 1973), *the Reid-Ware Three-Factor Internal-External Scale* (Reid & Ware, 1974), *and the Multidimensional Multiattributional Causality Scale* (Lefcourt, 1981), all of which were developed primarily for adults. Measures of LOC specifically geared for children include the *Bialer-Cromwell Children's Locus of Control Scale* (Bialer, 1961), the *Crandall Intellectual Achievement Responsibility Questionnaire* (Crandall, Katkovski, & Crandall, 1965), and the *Nowicki-Strickland Locus of Control Scale for Children* (Nowicki & Strickland, 1971). *The Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) and *the Preschool and Primary Internal-External Control Scale* (Nowicki & Duke, 1974b) were developed to measure LOC in preschoolers. The age specificity of these scales makes it possible to measure changes in LOC in special needs children that may result from therapeutic interventions.

The Expressive Therapies Continuum

Kagin and Lusebrink (1978) developed a framework for the use of art media in art therapy, the Expressive Therapies Continuum (ETC). The ETC helps art therapists choose the most appropriate art media for their students, and it provided the theoretical basis for this study of media differences in art therapy with special needs children. Kagin and Lusebrink added the notion of Media Dimension Variables (MDV) to the ETC framework to identify qualities and characteristics of art media that correspond to different levels of psychological functioning. They identified a continuum of qualities of art materials ranging from resistive to fluid. Media that is more resistive supports cognitive processes and ego-organizing capabilities, while more fluid materials evoke affective processes at the libidinal level of the psyche (Hinz, 2006). According to

Hinz (2009), the "ETC provides a common theoretical foundation based on qualities of art media, expressive styles, and creative activities" (p. 18).

According to Lusebrink (1990), the ETC operates at four levels: (1) kinesthetic and sensory, (2) perceptual and affective, (3) cognitive and symbolic, and (4) creative. The kinesthetic level focuses primarily on energy release and expression using body activity and movement, while the sensory level emphasizes tactile and haptic experiences during art-media interactions. The perceptual level refers to the form or structural qualities of the expression, while the affective level describes emotions aroused, accessed, and expressed in individuals during interactive experiences with art media. The cognitive level focuses on analytical, sequential operations, and the symbolic level on intuitive concept formation, realization, and the symbolic expression of meaning. Finally, the creative level focuses on the synthesizing and self-actualizing forces of the ego and self. Each level has its own qualities, and art materials that are used in art therapy can be found at every level of the ETC.

Lusebrink (1990) explained that image formation can be facilitated through the visual exploration of simple objects and, moreover, that it can lead to increased motivation to be involved in art experiences. The softness of an art medium like clay, for example, helps children in art therapy to express their inner fantasies and emotions, while its three-dimensional quality encourages them to engage in the creative process (Sholt & Gavron, 2004). Lusebrink noted that tactile stimulation provides an external sensation that leads one to realize one's inner thoughts. Thus, the use of 3D materials, and especially clay, may facilitate important emotional outcomes for clients in art therapy.

Statement of the Problem

Children with special needs often have a tendency to be externally oriented because of their accumulated failure experiences (Shogren, Bovaird, Palmer, & Wehmeyer, 2010;

Wehmeyer, 1993; Wehmeyer & Kelchner, 1996). Accordingly, when children enjoy successful experiences through art making, they may be more likely to feel a sense of control and employ their own abilities (Catterall, 2012; Eisner, 1998). Art making may prove to be especially effective when working with children with special needs, who often struggle with linguistic problems that can limit their expression of emotions through language. Clay media, in particular, because it is malleable, provides sensory stimulation and enables children with special needs to create and control it (Kwon, Seo, & Coi, 2010; Trantnik, 2012; White, 2001). This study, then, draws upon the theories of the ETC and MDV to investigate the effectiveness of clay as an art media conducive to enhancing self-esteem and a sense of achievement, and improving the internality of LOC particularly in children with special needs.

Purpose and Justification of the Study

The purpose of this study was to identify differences in the impact of two-dimensional (2D) versus three-dimensional (3D) art materials on LOC in South Korean elementary school children with special needs. In this study, the term "special needs" refers to any child requiring "non-standard or special forms of education, social experiences, or treatment because of their physical, psychological, and social limitations or disabilities" *(The Korean Dictionary of Social Welfare*, 2009, p. 89). Children with special needs tend to exhibit an external LOC in learning situations because of biological and environmental issues (Shogren, Bovair, Palmer, & Wehmeyer, 2010). Though many studies have been conducted on art therapy for children with special needs (Anderson, 1996; Banks, 1993; Silver, 1978), there is insufficient research on the differential effects of 2D versus 3D art media on children's sense of achievement and LOC. Further, little research has addressed the particular effectiveness of clay-based 3D art materials in art therapy for children with special needs.

The U.S. Public Health Service reported that 1 in 10 children in the United States suffer

from mental health problems that cause some type of impairment, but less than half receive treatment (U.S. Public Health Service, 2000). In 2000, the Korean Ministry of Education reported that 10% of Korean children suffer from mental health problems, but only 10% of those who were registered as special needs children received special education. Thus, the need is great for therapeutic interventions that can be conducted with special needs children in a variety of setting and with maximum effectiveness.

Children with special needs often experience accumulated failures that lead to poor acquisition of knowledge, which in turn has a negative effect on future learning (Mercer, 1991). Low expectations, low self-esteem, and fear of failure all generate repeated failures of learning, and these negative feelings and experiences increase the externality of LOC in special needs children. External LOC is more problematic than internal LOC in that people with more external LOC are more prone to perceive threat because they believe they lack control, therefore cannot see situations as controllable (Lauer, 2008).

To overcome these challenges, repeated successes at school are essential. In a study of the relationship between LOC, self-esteem, and art therapy. Kim (2006) found that more simplified and structured programs in order to help increase learning outcomes and improve self-concept using art therapy.

Although the effectiveness of art therapy has been studied over several decades, researchers have focused primarily on the use of 2D materials rather than 3D materials (Kim, 2002). This is especially true of Korean art therapy research, 72% of which involved 2D materials and only 18% 3D materials (Hwang & Kim, 2010). Goryl (1995) found that although 99% of art therapists in his sample believed that clay has therapeutic power, only 25% used clay in their clinical sessions. Several factors may account for this minimal use of clay in art therapy. First, the lack of research on the healing benefits of clay may cause therapists to overlook its

potential for use in their practice. Similarly, because few art therapists use clay in their art therapy practice, researchers may tend to overlook the importance of studies on the particular benefits of clay. Practical reasons also exist: because clay may be messy and require a great deal of space to store the finished pieces, in some therapy settings it may be impractical.

Hypothesis

This study compares the effects of 2D and 3D clay-based art materials in art therapy on LOC in special needs children in group art therapy in Korea. The hypothesis for the study was that special needs children who used 3D clay-based art materials in an art therapy group would gain a more internal LOC as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) as compared to children using only two-dimensional art materials in art therapy or those in a control group not engaged in art therapy. Thus, the primary research question for the study was: What is the differential impact of 2D and clay-based 3D art media on the locus of control of South Korean special needs children in art therapy as measured by SPIES?

Research Design

This mixed methods study employed a quantitative pre and post-test control group design with a qualitative component. Children were selected in one elementary school to avoid avoid the problem of differences in school or classroom environments. 15 Children with special needs in a South Korean elementary school were divided into three groups using: (1) 2D art media only, (2) only 3D clay-based art media only, and (3) no artistic intervention. The two treatment groups underwent 10 sessions of art therapy. The age of the15 participants ranged from 7-12 years. The *Stanford Preschool Internal-External* Scale (Mischel, Zeiss, and Zeiss, 1974) was utilized for both the pre- and posttests.

Definitions of Terms

This section contains the definitions of major constructs used in this study.

Autistic Spectrum Disorder

According to the DSM-5, individuals with an Autistic Spectrum Disorder (ASD) exhibit at least one of the following: developmental retardation, impaired social interactions, communication deficits, and stereotypic behaviors, as well as symbolic and imaginative play for social communication. Usually the onset of ASD occurs around three years of age. Because autism affects overall development, children with ASD often exhibit intellectual disabilities, learning disabilities, or other disabilities. Their symptoms are diverse and range from severe (self-injury and aggression) to mild (learning disability).

In Korea, 2.64% of children ages seven to twelve were proved to suffer from autism spectrum disorders (ASDs), according to Young-shin Kim and colleagues (2011) reported in the *American Journal of Psychiatry*, and male children show a four-times quicker onset rate compared to female children. Female children, however, tend to show more severe symptoms than males. Kanner (1943) noted that children with autism may exhibit any of the following 10 symptoms: (1) inability to develop relationships, (2) delay in the acquisition of language, (3) non-communication use of spoken language after it develops, (4) echolalia and delayed echolalia, (5) pronominal reversal, (6) repetitive and stereotyped play, (7) maintenance of sameness, (8) lack of imagination, (9) good rote memory, and (10) normal physical appearance.

Expressive Therapies Continuum

Developed in 1978 by Kagin and Lusebrink, the Expressive Therapies Continuum (ETC) is a conceptual model representing expression and interaction with art media of different sorts and on different levels.

Intellectual Disabilities

The definition of intellectual disability (ID) has been attempted by many scholars, and has evolved through the years. In 1941, Doll defined ID as a treatable social incompetency with biological origins. The current definition of intellectual disabilities from the American Association on Intellectual and Developmental Disabilities (2011) includes Doll's early definition: "significant limitations in both intellectual functioning and adaptive behavior expressed in conceptual, social, and practical adaptive skills and age of onset before the age of 18" (p. 37).

According to the DSM-5, intellectual disability involves impairments of general mental abilities that affect adaptive functioning in three domains, conceptual, social, and practical. These domains determine how well an individual copes with everyday tasks. The conceptual domain includes skills in language, reading, writing, math, reasoning, knowledge, and memory. The social domain refers to empathy, social judgment, interpersonal communication skills, the ability to make and retain friendships, and similar capacities. The practical domain centers on self-management in areas such as personal care, job responsibilities, money management, recreation, and organizing school and work tasks.

Based on the degree of damage to intellectual function, ID are categorized at one of four levels: mild, moderate, severe, and profound. Individuals with mild ID are educable. Though they may progress slowly, individuals with mild ID can live as independent adults economically and socially. The mental age of individuals with mild ID ranges 8 to 10 years old and IQ from 50 to 69. Individuals with mild ID account for 80% of all people with ID. Persons with moderate ID are considered trainable. They can be trained to handle their personal affairs and are capable of doing simple labor, though they may need some assistance. Their mental age ranges from 6 to 7 years old, and their IQ from 35-55. Individuals with moderate ID account for 12 % of all with

ID. Those with severe ID can acquire simple skills in handling their personal affairs, and can protect themselves from danger. Their mental age ranges from 3 to 5 years old, and their IQ from 20 to 40; they account for 7 % of people with ID. Patients with profound ID are usually under custodial care because their physical coordination and sensory-motor coordination impairment is noticeable. They can acquire only the simplest level of skills to handle their own affairs; some of them can learn language, but usually at the level of early childhood. Their mental age is less two years, and their IQ is under 20, or immeasurable. Individuals with profound ID account for 1% of all with ID (American Association on Intellectual and Developmental Disabilities, 2011).

Learning Disabilities

The term "learning disabilities" was first used by Dr. Samuel Kirk, a professor at Illinois University in 1963. Researchers originally used the term "minimal brain dysfunction" to describe a learning disability, but later changed it because of its negative connotation (Kavale & Forness, 1995). While various definitions have been put forward over the years, the most commonly-accepted in Korea as well is from the U.S. Department of Education (Mercer, 1991):

United States Office of Education (1977) explained that the term specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning disabilities which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or emotional disturbance, or of environmental, cultural, or economic disadvantage.

This study used the description of learning disabilities put forth by the US Office of Education: four primary concepts comprise this definition (Kavale & Forness, 1995; Mercer,

1991). First, a learning disability implies a deficit of basic cognitive function, that is, an abnormality that regularly occurs during information processing. This irregularity may stem from problems, for example, with visual perception-motor coordination, attention, and short-term memory (Kavale & Forness, 1995; Mercer, 1991). Second, a learning disability accompanies a serious deficit or retardation in course learning of basic functions, such as reading, writing, and calculating, because of an issue with basic cognitive function. The third element of learning disabilities is biological. Even though some specialists of learning disabilities insist that these are simply learning handicaps generated from environmental and acquired elements, a neurological study found that a learning disability is an organic disorder related to the central nervous system (Church, Lewis, & Batshaw, 1997). Lastly, a learning disability does not include the learning deficits that are generated from other disorders or environmental deficiencies. It means that one should not diagnose and label a child with a learning deficit due to environmental problems as special needs, and that child should receive necessary services.

Locus of Control

Locus of control (LOC) refers to an individual's beliefs about the outcomes of events that affect individuals, and was developed by Julian Rotter in 1954. Internally oriented individuals believe that the outcomes of events originate from their own abilities and behaviors, while externally oriented individuals believe that the outcomes of events derive from external power, fate, and other sources (Rastegar & Heidari, 2011).

Special Needs Children

Children who "need non-standard or special forms of education, social experiences, or treatment because of their physical, psychological, and social limitations or disabilities" (*The Korean Dictionary of Social Welfare*, 2009, p. 89). Special needs children require such services because they display typical academic, behavioral, and social characteristics, such as intellectual

disabilities, autism, learning disabilities, emotional disabilities, linguistic impairment, visual impairment, and/or hearing impairment.

Two-Dimensional (2D) and Three-Dimensional (3D) Art Media

To create 3D art is to create a sculpture or plastic piece of art that has volume (Art monthly, 2007). *The Korea Art Terminology Dictionary* (2007) defines making 3D art as composing sculptures or crafts as artistic shapes based on 3D space formation using various 3D materials like stone, wood, clay, fabric, glass, recyclable material or grain (Korean dictionary editorial department, 1998). Art that media that is 2D refers includes tools such as pencils, pens, crayons, watercolors and other paints, and markers that are used for drawing or painting on paper.

Conclusion

This chapter examined the purpose and justification for carrying out the study. The research statement and hypothesis were provided along with major concept of the study. A brief overview of the proposed research was also provided. The following chapter will provide an overview of the literature surrounding the topic of this research proposal.

CHAPTER TWO

LITERATURE REVIEW

In this chapter a review of the literature pertaining to this study is provided. The first section contains a discussion of art media used in art therapy and mainly concerns the Expressive Therapies Continuum and Media Dimension Variables (Kagin & Lusebrink, 1978). In addition, components of 2D and 3D art media, as well as the specific therapeutic quality of clay, are examined. The second section concerns the history of LOC and related research, including the role of LOC in Rotter's social learning theory, Heider's attribution theory, and Dweck's achievement goal theory. Previous studies on LOC in special needs children are reviewed as well. The final section includes on research on special needs children in three categories: those with intellectual disabilities, learning disabilities, and autism. Case studies that investigate how art-creating activities may lead to achievement experiences for such children also are included.

Art Media in Art Therapy

Lowenfeld (1987) asserted that art materials in art therapy should be chosen to help clients avoid experiencing failure or frustration and gain a useful method for expressing their thoughts. The term "medium" includes every material that is used in making art (Kim, 1992). In a broad sense, an art medium includes all the elements used to produce any form of art. Since each art medium has its own characteristics in the art-making process, art therapists are educated about the characteristics, methods of manipulation, and limitations of art materials. Many art materials require specific tools or skills. For example, some drawing materials, such as pencil, water color, charcoal, pastel, and acrylic, require the proper texture of paper for the media. To successfully use clay, basic skills are needed for the proper handling and firing of a completed piece (Kong,

Kim, Park, Lee, Lim, Jun, & Jung, 2004). These and other understandings of art materials enable art therapists to help clients select the art materials that will enable them to succeed, avoid failure, and lessen the frustration of trial and error. For this reason, scholars have been interested in understanding the implementation differences in the use of various art media for art therapy purposes.

Theoretical Approaches to Art Media

Art therapists use numerous criteria when selecting and applying art materials for their clients. The therapeutic potential of different media is influenced by several practical features such as level of difficulty, number of steps, and physical requirements (White, 2002). Researchers hold different opinions about the number of art materials that should be offered in art therapy. Kramer (1961) theorized that the therapist should control the number of art materials offered to clients in order to avoid confusing the client, while Rubin (1984) proposed that it is best to let clients choose the materials of their choice from an array available to them.

Kramer (1986) asserted that the relationship between therapist, client, and art medium are intertwined; therefore, it is important to supply high-quality media and keep supplies in good condition in order to cultivate the creative process. Margaret Naumberg (1987), Mala Betensky (1973), and Harriet Wadeson (1980) believed that using simple fine-art materials is most useful for art therapy because it should focus not on artistic skill, but self-expression.

The Expressive Therapies Continuum

The most sophisticated theory of materials used in art therapy is the Expressive Therapies Continuum (ETC) developed by Kagin and Lusebrink (1978), researchers who also identified Media Dimensions Variables (MDV) that enabled them to explore the effects of different media properties in art therapy. The ETC was developed to help therapists understand different levels of

art-making in art therapy. A conceptual model, the ETC consists of four levels that correspond to the use of media in a developmental sequence (Lusebrink, 1990). The framework for the ETC and MDV takes information from diverse sources—art therapy, art education, cognitive psychology, perception and imagery, visual information processing, stages of graphic development, various expressive styles—and incorporates it into an all-inclusive theoretical structure. The model provides guidance for therapists about how clients interact with art materials, form images, and process information. The ETC is based on a variety of art therapy approaches: art as therapy, developmental art therapy, gestalt art therapy, phenomenological art therapy, psychodynamic art therapy, and cognitive art therapy (Lusebrink, Martinsone, & Silova, 2012).

The ETC is a schematic framework that is based directly on three criteria related to: (1) the use of art media as a means of visual expression and communication, (2) the multi-leveled meaning present in visual expression, and (3) the therapeutic effects of the creative process (Lusbrink, 1990). The model applies to all the basic modalities of expression: vision, sound, touch, words, and movement. Kagin and Lusebrink (1978) explained that the first three levels of the ETC (the kinesthetic/sensory level, perceptual/affective level, and cognitive/ symbolic level) are similar to Bruner's (1964) three modes of representation: the enactive, iconic, and symbolic. Each ETC level exists along a continuum; for example, a child may move from working kinesthetically with clay to smoothing the clay with water in a sensory manner. The fourth level of the ETC, the creative level, was based on various theories and models of creativity.

Kinesthetic/sensory level. The first level of the ETC involves the kinesthetic/sensory realm (Hinz, 2009; Kagin & Lusebrink, 1978; Lusebrink, 1990). The kinesthetic component of this continuum focuses on energy release and expression, in other words, on using physical

movement to explore an art medium. On this level, art materials are either used for their sensual dimension or they play a passive role. Clients can use many materials to experience this level of expression in various ways. For example, when using clay, clients can pound, hit, grasp, squeeze, throw, and twist the material (Lusebrink, 1990). Interaction with media on this level, such as scribbling and spraying, or splattering watercolor, can be connected with expression on other levels. For example, scribbling is a muscular movement used to express one's emotions on the affective level, and can translate to the symbolic level when finding meaning in the artwork.

Hinz (2009) stated that materials such as wood, mosaic tile, and clay have an inherent structure, and are boundary-determined, meaning that the inherent structure might limit expression. Similarly, Kagin and Lusebrink (1978) noted that the physical boundaries of materials limit their expressive potential when the materials are boundary-determined. For example, an individual might be limited by the size of a piece of wool. Hinz (2009) used the example of a large jar of tempera paint and a tablespoon of the same paint placed in a muffin tin. The larger jar, in providing more paint, would allow for a much more emotionally engaging experience than the latter.

The sensory dimension focuses on the senses, that is, on the sensual experiences clients have when in contact with art materials (Hinz, 2009). Such experiences are achieved not only by one's tactile sense, but also through visual, auditory, gustatory, and olfactory channels. The sensory dimension of the kinesthetic/sensory level highlights interactions between clients' internal and external experiences and art media (Lusebrink, 1990). Clients become accustomed to temperature and texture first, and weights and formation later. Visual stimuli also play an important role on this level. For example, some clients who use finger paints might feel a soft and pleasurable sense, while others might feel a sticky and unpleasant feeling. Thus, the sensory level concerns experiences related to the art materials themselves. The kinesthetic/sensory level

represents the simplest form of information gathering and processing – an immediate response to art materials – and may include few controls on art materials.

Perceptual/affective level. The second level of the ETC is the perceptual/affective level (Kagin & Lusebrink, 1978). The perceptual dimension is about perceiving, especially the boundaries formed by shapes. This dimension also focuses on the structural qualities of art materials. On this level, individuals imbue more meaning to the structural aspects of what they are creating rather than to the art materials. Highly structured materials such as wood, stone, and mosaic tiles may be used to solidify an individual's internal structure. On this level, perceptual training is possible; describing shapes, colors, and lines in visual expression is one perceptual training exercise. On this level, a change in perspective and recognition of boundaries also is possible. For example, when people perceive an object at a short distance, they typically focus on the structural quality of the object; whereas when they perceive an object at a long distance, they focus on the outline of the object's shape, not on the structural quality.

The affective dimension deals with colors, shapes, and lines, giving rise to emotions in the subject (Kagin & Lusebrink, 1978). Such emotional responses will differ depending on the color and intensity of the materials. If the emotions that arise are threatening or difficult, moving to the perceptual side of this continuum is recommended. For example, when a therapist judges that a client cannot deal with his/her emotions, the therapist can recommend the client use resistive materials, like cardboard or craft sticks. The choice to use resistive or fluid materials differs according to an individual's needs. Children who are intellectually or emotionally suppressed, for instance, might have trouble expressing their ideas through watercolors because of the fluid and spontaneous quality of that medium.

Cognitive/ symbolic level. The third level of the ETC is the cognitive/symbolic level (Kagin & Lusebrink, 1978), which relates to problem-solving. The focus here is on analytical

and logical problem-solving. Clients learn the process of using art materials by understanding the qualities of those materials. For example, clients can create a house out of wood sheets and wooden craft sticks and, in the process, not only understand how to use a hammer, nails, and glue, but also learn how make a step-by-step plan for building the structure. Resistant and structured art media, such as pencils and corrugated cardboard, can enhance clients' cognitive activity level. On this level, individuals might name the artwork, describe the artwork through language, and understand verbal instructions. Structured art-making processes are possible on the cognitive/symbolic level: making a themed collage, building a car out of cardboard, using plasticene to create an animal, etc.

The symbolic dimension is about uncovering the meaning in the artwork (Kagin & Lusebrink, 1978). This dimension focuses on the formation of intuitive concepts and meaningful experiences. Symbols are multidimensional and encompass several elements such as emotions, structures, shapes, and meanings. On this dimension, fluid materials can help form a symbolic image. For example, wet clay can produce ambiguous shapes and promote symbolic perception. According to Lusebrink (1990), ambiguous shapes encourage the creation of recognizable symbols that can be imbued with personal meanings. Materials that require precision, planning, and complicated thought evoke cognitive experiences. When clients try to understand a meaning on the symbolic level, it can be connected to the creative level.

Creative level. The fourth level of ETCs is the creative level. The focus of this level is self-realization, that is, achieving unification between external and internal experiences, between individual experiences and art materials, and between individual experiences and expressions (Hinz, 2009). However, creativity is not limited to this one level; rather, it can be found on every level of the ETC. Individuals working on the creative level experience intense excitement when

creating works of art. Further, assessing the final artwork is immensely therapeutic and generates a deeply satisfying feeling.

Media Dimension Variables

Many art therapists and art therapy researchers have discussed the use of media properties in art therapy (Rhyne, 1973; Rubin, 1984; Wadeson, 1980). Kagin and Lusebrink (1978), however, conducted a formal presentation on the use of media properties in art therapy. Kagin (1969) was among the first to discuss media dimensions in her thesis *The Influence of Structure in Painting on Verbal and Graphic Self-Expression of Retarded Youth.* Kagin asserted that "dimensions of art media are discernible and can be classified" and further, that "media dimensions can be therapeutically applied" (p. 4). She listed the various qualities or properties of media as: fluidity, malleability, indestructibility, expansiveness, unpredictability, adaptability, and many other descriptive "ilities" and "ivenesses" (p. 8). In addition, she classified three variables needed to create art in a therapy session: structure, task complexity, and media property.

Structure pertains to the number of directions given to explain the task and can range from high to low. Thus, the level of structure of art experiences is defined by the extent to which an art therapist's direction influences the art making processes. An origami project, which involves verbal or visual instructions to complete, would be an example of a high structure task. To the contrary, unstructured projects give simple instructions and allow individuals the freedom to select what they would like to create, such as "paint anything you wish." An example of a structured project would be asking a client to create a bowl using lump of clay, water, and potter's wheel, or to create a free-expression painting using paint, a brush, and a piece of paper.

Task complexity refers to the difficulty of the given task, that is, the steps required to

complete the artwork. Task complexity ranges from high to low. A task with three or more sequential steps (except simple repetition of a single process) is designated as high complexity, and a task with less than two steps is defined as low complexity. For example, a high complexity art project would be building a house of wooden craft sticks, and a low complexity process would be finger painting. The selection of a high or low complexity art project may well be related to a client's cognitive development and capabilities.

According to Kagin (date), "Materials are soft or hard, fluid or solidified, smooth or rough in text, large or small, etc. Obviously, these properties are not dichotomized, but range in a continuum." (p.10) In Kagin's study, media properties were organized along a continuum from fluid to resistive. Fluid media are soft, aqueous, quite malleable, and easy to manipulate. Resistive media are hard, brittle, slightly pliable to non-malleable, and difficult to manipulate. Kagin classified finger paint, soft clay, and polymer acrylics as fluid media, and highly grogged clay, metal, wood, poster boards, and heavier paper as resistive materials. However, Kagin and Lusebrink (1978) suggested that an art medium can exist in both positions, fluid and resistive. For example, clay can be either fluid (if the clay is wet and sloppy) or resistive (if the clay is hard).

This context is similar to Landgarten's (1987) ideas about media use. She argued that art materials serve more functions than just the creative. She explained:

> It [art media] can heighten or lower the client's affective state, influence the freedom of self-expression, and circumvent defenses. Due to these factors, the size and properties of the media are given consideration. Materials can be viewed on a 10-point continuum from the least to the most controlled. (p. 7)

Landgarten presented a 10-point continuum of materials, as follows, from least to most controlled: wet clay, watercolors, soft plasticene, oil pastel, felt markers (thick), collage, hard plasticene, felt markers (thin), colored pencils, and lead pencils. This continuum is limited, however, in that it only accounts for 10 types of materials.

Moon's Categories of Art Media in Art Therapy

Moon discussed various art materials used in art therapy in her book *Materials & Media in Art Therapy* (2010). She described the specific therapeutic qualities of the following art media: books, boxes, clay, collage, crafts, design, drawing materials, fiber arts, found objects, glass, masks and body casting, natural materials and the environment painting materials, performance art, photography, printmaking materials, puppets, technology media, and video and film. Further, she suggested a practical method to use media in art therapy and reported clinical research on the therapeutic uses of art materials.

Her explanation of each category is congruent with MDV in that the art media is explored along a continuum. For example, she explained that clay can be an easy and simple medium for children who make mud pies, but also a complex medium for adults who create aesthetically satisfactory sculptures. Further, she said that clay is fluid media when it is water-based (and thus wet and soft), but that clay also can require complex processing, such as when it is colored or employs technically demanding claywork skills (Virshup, Riley, & Shepherd, 1993 as cited in Moon, 2010). In general, claywork is created with both spontaneity and force (Henley, 1991 as cited in Moon, 2010). Moon analyzed each type of art media, and identified a system similar to MDV. Table 1 presents an overview of Moon's categories of art media according:

Table 1. *Categories of Art Media and Media Uses in Art Therapy*

Art Media	Media Uses in Art Therapy
Books	Books are readily available, have innate structures, and are inherently interactive. An example would be a blank artists' book filled with personally meaningful content (Moon, 2010).
Boxes	Boxes come in various sizes and usually can be personalized by clients in art therapy (Waller, 1993). Examples include symbolic containers (Farrel-Kirk, 2001) and memory boxes (Hrenko, 2005).
Clay	A versatile medium with a three-dimensional capacity, clay offers clients the opportunity to perceive objects and environments in a new way (Henley, 1991). Since clay requires visceral, sensual, and physical investment, it is more easily inhabited than blank paper (Avetikova, 2008), but requires techniques that may frustrate clients (Virshup, Riley, & Shepherd, 1993).
Collage	Comprised mainly of 2D materials, collages come ready-made with vivid images. Collages are less threatening for clients who lack artistic confidence (Buchalter, 2004); they easily engage clients in the actual layering of materials.
Craft and Design	If craft and design is in art therapy it requires dialogue between creators and the art media.
Drawing	Drawing is the most prevalent medium in art therapy. Many drawing materials contain colors and require some motor skills. Paper-based drawing media, such as oil pastels, colored pencils, and markers are commonly employed in traditional art therapy.
Fiber arts	Traditional fiber arts include sewing, weaving, knitting, crocheting, batik, embroidery, and quilting. Working with fiber in art therapy engages clients in a strong tactile process (Seiden, 2001).
Found objects	The hybrid nature of art that involves changing ordinary found objects into extraordinary objects may be meaningful for depressed clients. This process has no age limit and may offer a strong metaphor for clients.
Glass	Glass is an uncommon medium in art therapy, but may hold symbolic potential as a result of its features of transparency, translucency, and fragility.
Masks and body casting	Mask work can help clients find hidden aspects of the self (Wadeson, 2000), enhance identity and self-awareness, conceal difficult feelings, and create symbols of protection (Dunn-Snow & Joy-Smellie, 2000).

Table 1. *Art Media and Media Uses in Art Therapy* continued

Natural materials and the environment	Although few studies concern art therapy that utilizes the environment, Henley (1992) suggested creating artwork from organic elements like shrubs, flowers, water, fish, sky, and stone. In his project, Henley encouraged children to create artwork beside a river with mud, clay, and stones.
Performance Art	Performance art can take place anywhere and strongly interact with the performer's life. McNiff (1992) stated that incorporating performance art enables the exploration of emotions through artwork in a physical and embodied way.
Photography	Photography originally was used in art therapy to take photos of clients' artwork, but studies show that incorporating photo work increases clients' subjective and objective self-awareness, and provides them with multiple perspectives on their lives (Zwick, 1978)
Printmaking	Printmaking involves simple processes, such as carving the surface of objects, but includes complex processes as well, such as etching and woodcutting. Printmaking allows clients to produce the same images repeatedly, symbolically connoting longevity and continuity (Seiden, 2001).
Puppets	Can be both 2D and 3D and made from various materials. Puppets can be recognized as an extension of one's self, a part of one's life, and one's environment (Bernier & O'Hare, 2005).
Technology Media: Video and Film	Technology allows clients to use fewer manual skills and less of their perceptual and conceptual abilities (Seideon, 2001). Watching themselves on video enhances clients' insight and ability to generate new solutions to problems (Powell, Newgent, & Lee, 2006). Concern still exists, however, about the use of new media in a therapy setting (Williams, Kramer, Henley, & Gerity, 1997).

Moon's (2010) understanding of the uses of art materials in art therapy are based on developmental, psychodynamic, systematic, and relational theories. Kagin and Lusebrink (1978) based the ETC and MDV on various theoretical approaches, such as art as therapy, gestalt art therapy, phenomenological art therapy, psychodynamic art therapy, and cognitive art therapy. In summary, the ETC and MDV provide information to guide art therapists in their use of expressive activities and creative processes with clients. As Kagin and Lusebrink (1978) emphasized, art materials can be viewed on a therapeutic continuum. Moon suggested that art

therapists turn to research to find support for the art medium they choose to use with clients, since art media is used differently with different therapeutic approaches. Moon found that not all media can be placed along each dimension of the MDV (fluid to resistive, structured to unstructured, and simple to complex), but she agreed with Kagin and Lusebrink that most art media contains various qualities that can be placed at either end of the continuum of the MDV. The ETC (like the MDV) represents a remarkable theory in art therapy, as it provides both unifying principles for the use of art therapy and a structured framework for the use of art media in art therapy (Hinz, 2009).

2D and 3D Art Media

The exploration of 2D and 3D art materials is relevant to this study as well, since the special needs children in this study were assigned to three different art therapy groups. The type of art materials used in each group served as the independent variable. The three art therapy groups were: (1) a group using only 2D media, (2) a group using both 2D and 3D media, and (3) a group using only clay-based 3D media.

The concept of 2D art. *The Great Dictionary of Art* (Korean Dictionary Editorial Department, 1998) describes 2D art as "composing painting or drawing as an artistic shape based on two-dimensional space formatting using various materials like pencil, oil pastel, marker, water color, acrylic, or charcoal" (p. 272). The kinds of art media classified as 2D usually include those involved in painting or drawing techniques, or stamping activities. In addition, 2D media can be categorized as dry media and wet media according to its usage (Lee & Choi, 2008).

Components and conceptual elements of 2D art. The components of 2D art include: spot, line, surface, shape, color, value, texture, volume, size, direction, composition, tension, and optical illusions. These components can be categorized into conceptual elements and visual

elements (Kwon, 1996). Conceptual elements include spot, line, surface, volume, and direction, all of which are invisible and not in existence physically, but can be felt conceptually. Table 2 displays the characteristics of the conceptual elements (Ovirk, Stinson, Wigg, Bone, & Cayton, 2001).

Table 2. *Conceptual Elements of Art*

Conceptual Elements	Characteristics of the Elements
Spot	The general meaning of spot is tiny marking. It is a basic unit of art that does not have volume, but does mark location. According to the number, location, brightness, size, materials, and the relationship to other spots, the spot can indicate shape, movement, space, and special feelings. When the interval between spots is narrow, it conveys a fast and constricted feeling; when the interval is wide, it conveys a slow feeling. Further, a gradual change in the size of spots can indicate a sense of movement and space.
Line	Line is another a basic unit of art and it consist of continuous spots. Line has location and direction, but does not have wideness and volume. Line is not only used to draw the shape of objects, but also to express light and shade, dynamic, texture, space, and movement. According to the length, thickness, direction, brightness, materials, and interval between lines, line can display rhythm and emotion. Changes in the connections between spots generate straight lines and curves. The impressions a straight line provides are masculine, speed, tension, direct, keen, clear, and concise, while a curve conveys impressions that are feminine, flexible, elegant, cheerful, indirect, and rhythmical.
Surface	Continuous lines produce surface. Surface consists of closed lines, which can be categorized into flat or curved according to how the spots and lines meet. Surface has length and width but no depth, however, according to color and artistic effect, surface can indicate depth. Surface has the strongest effect on two-dimensional art by virtue of color.
Volume	Volume refers to a three-dimensional sense using value or perspective. To express volume in two-dimensional art, the feeling of size, volume, thickness, and weight should come together. Volume in three-dimensional art refers to real space, while volume in two-dimensional art refers to a sense of mass that is expressed effectively on a flat space.

Table 2. *Conceptual Elements* continued

Direction	Every line has direction. The major direction is verticality, horizontality, and an angle of 45 degree. Vertical direction provides a feeling of balance, calmness, and passiveness. Horizontal direction offers a feeling of peace, limitation, and intimacy. Direction with angles indicates a feeling of activeness, uncertainty, and danger.

Table 3. *Visual Elements of 2D Art*

Visual Elements	Characteristics of the elements
Shape	The two major classifications of shape are concrete and abstract. Concrete shapes are categorized again as into straight and or curved; both straight and curved concrete shapes are further classified into as categories of either geometric and or free. (1) Geometric, straight shapes display convey a feeling of stability, confidence, certainty, powerfulness, and order. (2), while free, straight shapes display convey a feeling of acuteness, immediacy, activeness, and lucidity. (3) Geometric, curved shapes indicate a feeling of freedom and understanding, while (4) free, curved shapes express the feeling of elegance, femininity, and disorder.
Color	Color is the most sensible, vivid, and instinctive visual element, which and is the major instigator of various emotions. The three attributes of color are hue, value, and chroma. Hue means refers to all kinds of colors, which and are categorized into three classes: warm, cold, and neutral. Warm colors based on yellow or red correspond to warm feelings; cold colors based on blue or gray correspond to cold feelings; and neutral colors based on green or purple, indicate neither warm nor cold feelings. Warm colors are advancing and extensive, while cold colors are receding and contractive.
Value	Value is the degree of brightness. Chroma presents the degree of dynamic color that is categorized into pure color (the strongest), clear color (pure color mixed with white *or* black), and dull color (pure color mixed with white *and* black).

Table 3. *Visual Elements of 2D Art* continued

	Value indicates brightness and darkness, producing volume and space in two-dimensional art. Value is possible with light, and according to the location of light, the value of brightness and darkness is changed. Value can be expressed by color in color painting, and by dynamism, frequency, and line intervals in achromatic color painting.
Texture	Texture indicates visual and tactile sense, such as rough, smooth, and soft. Texture provokes an emotional response and people can feel the quality of the object in paintings through expressed textures.
Size	When line, surface, and volume have interact in space, the interval of the space indicates size. People feel differently according to size in art, such as big, strong, magnificent, and overwhelming, or cute and pathetic.

V*isual elements of 2D art*. Visual elements of 2D art are the literal visible components of the art, including shape, color, value, texture, and size (Hong-ik University Art Institution, 2001; Ovirk, Stinson, Wigg, Bone, & Cayton, 2001). Table 3 provides a categorization of these visual elements and their characteristics.

Composition Principles of 3D Art. To understand the relationship between the many elements in 3D art, it is necessary to understand the composition principles of unity, emphasis, balance, proportion, movement, and rhythm (Oh, 2004; Ovirk, Stinson, Wigg, Bone, & Cayton, 2001). Table 5 displays the composition principles of 3D art.

Clay as a Therapeutic Art Media

Clay has been used in artwork from early human history (Staubach, 2005), and is still used in many art areas. Though there are fewer studies about the use of clay in art therapy as compared to other traditional paper-based art media (Hwang & Kim, 2010), researchers and practitioners have displayed interest in how clay can help clients in therapeutic ways.

Table 4. *Elements of 3D Art*

Elements of 3D Art	Content	Sub-elements
Conceptual element	Conceptual elements cannot be seen, and may not exist. They consist of the basic elements of shape construction.	Shapes Points Lines Surfaces Volume
Visual element	When conceptual elements are visualized, visual elements such as shape, size, color, and texture appear.	Size Color Texture
Relational element	Relational elements in three dimensions are concerned with location, since it allows people to notice direction and position, while space and gravity are only felt.	Position Direction Spatiality Gravity
Constructive element	The constructive element is the element in which conceptual elements are concretely substantiated by artists.	Angle Distance Light

The three-dimensional quality of clay. Clay is a 3D material that affects clients in a direct way because their hands actually touch the art material. Sholt and Gavron (2004) noted that clay reproduces certain features of real life, such as height, depth, length, and texture, allowing clients to express symbolic concepts more intuitively.

Furthermore, soft 3D art materials have helped clients reveal inner fantasies and emotions such as anxiety, desire, anger, and despair (O'gray, 2005). In addition, 3D materials have allowed clients to appreciate their work from multiple perspectives (which is less evident in 2D materials) and this quality helps clients broaden their viewpoints (Hwang & Kim, 2010). In that 3D art materials like clay enhance one's ability to take a mental concept and make it tangible, they enable art to become a bridge between one's inner and outer worlds (J. Kim, 2011).

Table 5. *3D Art* continued

Composition Principles	Contents
Unity	Unity refers to consistency and similarity in shapes, which integrate opposites into a whole. The concept of unity reveals that the entirety, not the part, has to be remarkable, and that viewers have to appreciate the art's wholeness before they can cognize its component parts.
Emphasis	Emphasis occurs through strengthening certain parts and making changes according to those parts' surroundings. Emphasis can create a specific accent by intentionally highlighting certain aspects to relieve a sense of boredom and to stress a particular animated emotion.
Balance	Balance is an essential element that applies to every existing thing, even breathing: if someone breathes in, he has to breathe out again. In this sense, balance means dispersion of energy throughout the artwork, which helps achieve a state of equilibrium. That is, artwork can show a sense of stability by visually dispersing the energy between two individual parts, as well as between one part and the whole.
Proportion	Proportion refers to aspect's size relative to other elements, principles, or standards. Proportion is the basis of harmony, which designates an object's own quantitative relationship according to length or size. This concept can be identified between individual parts, as well as between one part and the whole
Movement	Movement in art means the motion of objects reflected in the artwork. Therefore, even stationary artwork such as photographs or paintings portrays the illusion of motion. Dynamically arranged curves and diagonal lines, rhythmically displayed colors and shapes, direction, slope, repetition, and rotation are helpful to express movement.
Rhythm	Rhythm can be achieved when equivalent or similar elements show regular or periodic order. The arrangement of visual elements, including repetition and emphasis, causes one's attention to move. Rhythm is categorized as regular, irregular, or phased.

The tactile and tangible qualities of clay. Among the most important qualities of clay are its tactile and tangible qualities, which reduce the defense mechanisms of clients and helps them to reach a more fundamental level of consciousness (Case & Dalley, 1992). According to Frank (1957), sensory elements are the first to develop in human beings, and touch is an early mode of communication learned by infants. Reviere (1993) suggested that touch is the sense that first makes humans functional. He found that all senses are connected to the skin that humans developed through the sense of touch, and that touch is a primary communication tool. Referencing the researcher Vija Bergs Lusebrink , Hinz (2009) noted:

> Tactile stimulation can provide the most straightforward example of how focusing on external sensation can lead to the realization of an internal state or emotion…[Lusebrink] gave the example of having clients stroke wet clay with eyes closed, and explained how this act evoked an internal experience of love or sadness. (p. 39)

O'Gray (2005) conducted a qualitative case study of a 16-year-old African American female who had financial concerns and a longstanding pattern of environmental failure and trauma. Using clay as a therapeutic medium in her study, O'Gray used Edward's claywork method, which asks clients to create something using a four-kilogram block of clay. She used a Jungian perspective to interpret and analyze the symbols in the client's artwork, and then conducted dialectical interactions and mutual explorations with the client. Through the claywork, the client reflected her interpretations of family, school, and community interactions in the context of her environmental failure and trauma. O'Gray found that the claywork generated a therapeutic process by filling in the empty space formed by the client's suppressed and denied

feelings. In this way, the claywork facilitated communication between the researcher and the client, and encouraged the client to examine repressed and unconscious emotions.

Many clay artists or clay therapists have written about the healing aspects of claywork. Clay artist Bankson (2008) observed, "Because we live with so much visual stimulation, it is easy to forget the power of touch. Even the simple act of consciously touching something can be a powerful way of experiencing the world, particularly for kinesthetic learners" (p. 49). Bankson also stated:

> [P]hysical touch brings me into the present, engages me with a sense of a living relationship between me and the clay. It is sensual and sexual, exciting and full of unknowns in a way somewhat akin to the mass of cells that will become a baby. The feel of the clay moving against my palms rescues my thoughts from diffusion and escape, calling me to confront the challenge of dealing with this specific piece of clay. (p. 47)

Michelle Rhodes (2008), another American clay artist, stated,

> …to form something from a lump of clay is to expose what was in the darkness to the light of day, to open up spaces, to invite oneself into the realm of unspeakable memory…the focus remains on the outside of the clay form, emphasizing the boundaries of the clay parts rather than the sensation of the skin experience. (p. 27-28)

Similarly, Patricia Sherwood (2004), an American art therapist, noted, "Many clients have marveled at the capacity of clay to so quickly absorb and express what they are feeling" (p. 6).

The regressive quality of clay. Clay has a regressive quality that allows clients to experience a primitive stage in their development (Ogden, 1989). Ogden explained that for human beings, this primitive level is contiguous with autism, a condition that is dominated by the senses, especially touch and rhythm. According to Ogden, clay induces in clients a condition of

resonance with their basic instincts of communication. Sholt and Gavron (2006) 2006 found that regression through clay might provide an opportunity for clients to express the skewed images they have experienced when threatened.

Overall benefits of claywork. Clay is a 3D art media with tactile, tangible, and regressive qualities. Using clay, clients can reproduce shapes that are close to the real world, as well as observe clay's height, depth, length and texture. Such interactions allow clients to transform abstract symbols into tangible shapes. The multi-dimensional, malleable character of clay encourages clients to communicate with their elementary selves (Sholt & Gavron, 2006), and involves them in their artwork through physical interaction. Kagin and Lusebrink (1978) showed that the potential intensity of claywork lies in its ability to tap into a client's unconsciousness, amplify the personal meanings of symbols, and uncover the client's issues.

Locus of Control

For several decades, scholars have been interested in the relationship between students' effort, ability, and outcomes (Attanasio, 2003; Wehmeyer, 1994). In conducting research on motivation and educational outcomes, Rotter (1966) used the term locus of control (LOC) to refer to an individual's beliefs about control and agency in life events, more specifically, about the relationship between one's behavior and its results. Rotter posited the existence of a duality in such beliefs: internal versus external LOC. He theorized that people who have a more internal LOC believe that their behaviors affect the outcomes of situations, while people with a more external LOC do not believe that their behavior affects outcomes. LOC, then, is intimately related to an individual's belief system:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically

> perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control. (Rotter, 1966, p. 1)

Internal and External Locus of Control

Phares (1976) found that individuals with internal and external LOC react differently to success and failure, for example. Those with internal LOC feel proud when they experience good outcomes and feel shame when they experience bad ones, while those with external LOC experience less intense emotions in either case. Findley and Cooper (1983) argued that this distinction means that the relative attractiveness of the success experience is greater for those with an internal LOC.

Many scholars have studied the relationship between internal and external LOC (Gore & Rotter, 1963; Nowicki & Strickland, 1971; Seffer, 2012; Strickland, 1989), and found that LOC continuously impacts behavior in areas such as learning achievement, personal relationships, and emotional adaptation. Studies revealed that those with a greater internal LOC are more enthusiastic about problem solving, have more positive and constructive responses to problems (Beak & Choi, 1997), and have higher achievement motivation and positive self-concept (Wolinsky, 2009). To the contrary, those with a more external LOC tend to be self-critical and have difficulty coping with constructive criticism to their problems (Roddenberry & Renk, 2010). Thus, those with external LOC tend to have negative attitudes when they cope with tasks or problems, but those with internal LOC tackle issues with high self-esteem and positive

attitudes. Moreover, several studies support the relationship between internal LOC and the behaviors needed to obtain success. Ducette and Wolk (1972), for example, reported that externals tend to display less persistence at tasks, and Findely and Copper (1983) found a positive association between internal LOC and academic achievement. The findings of these early studies on the behavioral concomitants of LOC have been supported by later studies showing more positive variables associated with internal than external LOC, particularly in the areas of learning and achievement.

Assumptions about Locus of Control

Rotter's social learning theory originates from research in which early reinforcement theories (Lefcourt, 1976) were applied in clinical settings. As early as 1954, Rotter sought to understand the role of expectancies in personality (Rotter, 1954). He used both scientific and clinical research to articulate a social learning theory of personality (Kwon, 2006). One key aspect of this theory is how an individual's learning, perceptions, and beliefs are related to decision-making when faced with life challenges. The theory contains four important assumptions about human self-determination that concern learning from meaningful experiences, the reciprocal nature of life experience, the motivational nature of personality, and the role of expectancies.

The first assumption is that personality is developed through interactions between individuals and their environment; because individuals learn from past experiences their current behaviors are based on these past events. Thus, according to Rotter, researchers must understand a person's past experiences in order to predict his or her future behaviors. Applied to education, for example, if a student has had successful experiences with studying all night before an important exam, he or she is more likely do so again in the future (Kwon, 2006).

The second assumption concerns the reciprocal nature of life experience. Rotter emphasized the importance of interactions between new experiences and existing experiences. He believed that one's reaction to a new experience is affected by previous experiences, and that one's perceptions about current experiences also are affected by new experiences. For example, an individual's adaptation to college life may be influenced by high school experiences that seem similar; on the other hand, some may see college life as quite different from past high school experiences (Kwon, 2006). Thus, the nature of personality development is not simply additive, that is, composed of a list of experiences, but rather the result of interactions between old and new experiences.

The third assumption involves the motivational nature of personality. Rotter posited that behavior is regulated by goals. Specifically, people seek to maximize rewards and minimize punishments. A student might conclude that taking notes in high school classes maximizes the possibility of obtaining good grades, for example. However, if good grades and positive feedback from teachers do not occur when a student takes notes, the student may decide that he or she lacks the note-taking skills necessary for success or realize the need to improve writing skills with the aid of tutoring (Kwon, 2006). Therefore, people regulate their behavior based on past experiences in order to maximize success.

The fourth assumption is the role of expectancies. Rotter's position on the role of expectancies distinguished his theory from traditional learning theories, such as operant conditioning theory. Specifically, Rotter argued that the importance or value of the reward derives not only from the nature of the reward, but also from the expectancies of the individual. Therefore, when endeavoring to predict the behavior of an individual who already has had some successful results, one should understand not only the quality of the reward, but also the

expectations of the individual. If an individual recognizes that the possibility of obtaining the reward is low, then the reward has little motivational value. For example, many students in lower socioeconomic areas may neglect their studies because they have low expectations of success in academic arenas. In choosing their actions, these students take into consideration the scant possibility that studying actually will lead to a reward (Kwon, 2006). Therefore, the cognitive component of Rotter's theory emphasizes the role of individual expectations of reward for one's actions.

LOC and Attribution Theory

Attribution refers to the tendency of individuals to connect their belief system to the root cause of an event (Martinko, 1995). When an event occurs, humans naturally attempt to understand the reasons for it. Likewise, people seek to understand their environment and select their behaviors according to their related beliefs. Attribution theory was first considered in 1958 by Fritz Heider, who was an Austrian psychologist. Heider applied the idea of attribution to social psychology (Kwon, 2006). Even though these attribution theory and LOC theory have different foundations, both put greater emphasis on the cause of human behavior than environment or individual characteristics (Park, 2001). In the '70s and '80s, Weiner (1980) furthered this theory and called it achievement attribution theory. According to Heider (1958), when people attribute a cause to a situation, the attribution can be either internal or external. Internal attribution is attributing causality to an individual's internal qualities, such as personality, ability, motivation, and feelings, , while external attribution is attributing causality to external qualities such as situational specifics, the actions and influence of others, the weather, and unexpected accidents.

According to Kelly (1972), who was influenced by Heider, when an individual considers

another's behavior as the root cause of an outcome, three rules apply: consensus, distinctiveness, and consistency. The rule of consensus occurs when more than one person is involved in creating an outcome. If several people behave similarly in the same situation, consensus is achieved and the responsibility will not fall on one person. Distinctiveness depends on whether an individual's behavior is limited to one specific incident, or if that person's behavior is present in several arenas. If the individual performs the behavior in only one area, distinctiveness occurs. Consistency is achieved when the individual not only performs an action in a specific situation, but also in numerous situations. Kelly, then, explained the attributions that people make using these three rules.

Weiner (1980) combined attribution theory with pedagogy. He argued that individuals want to know the causes of their successes and failures. According to Weiner, individuals' beliefs motivate their subsequent behaviors. He asserted that the most important factors that influence attributions are ability, effort, task difficulty, and luck, and he classified attributions along three causal dimensions: LOC, stability, and controllability. Weiner also identified four elements of attribution: effort, ability, luck, and difficulty of the task. He believed that attribution dimensions and elements influence motivation.

LOC depends on whether one attributes their successes and failures to internal elements (the self) or external elements (the environment) (Weiner, 1980). When individuals attribute certain (positive) outcomes to their efforts or abilities, they may feel a boost in self-esteem, which then motivates their continued success. By the same token, those with an internally located LOC may feel shame if they fail in their work. However, when individuals attribute outcomes to the difficulty of the task or even to luck – that is, external variables – they may feel appreciation or relief upon success and anger upon failure.

Depending on whether the causes of events change over time or according to a situation, an attribution is either stable or unstable (Weiner, 1980). For example, one's ability and the difficulty of tasks are categorized as stable elements because they are not changed with time, while luck and effort are categorized as unstable elements because they can be changed with time. Controllability is about whether the cause of the event can be controlled by the individual or not (Weiner, 1980). This means that when one attributes an outcome to one's own effort (a controllable element), self-esteem rises when success is achieved. To the contrary, if a positive outcome is attributed to luck (an uncontrollable element), relief is the resultant feeling.

LOC and Dweck's Achievement Goal Theory

In r her book *Mindset*, Dweck (2006) argued that each individual holds beliefs about the origination of their abilities along a continuum ranging from "fixed mindset" to "growth mindset" (p. 15). In Dweck's research, people who believed that their success or failure originated from their innate abilities had a "fixed mindset." On the other hand, people who believed that their success or failure originated from the difficulty of the work, their ability to learn, or their belief in training, had a "growth mindset." Dweck's theory has connection with LOC in that her theory focuses on how humans attribute the outcome of events.

Dweck (2006) explained that a growth mindset does not mean that anyone can be good at all things, but that "[people with a growth mindset] believe that a person's true potential is unknown and that it's impossible to foresee what can be accomplished with years of passion, toil, and training" (p. 7). Thus, people with a growth mindset believe that even though one's original talents and interests may differ, one's basic qualities can be cultivated through effort. People with a fixed mindset disagree with the importance of risk-taking and the power of persistence because they downplay the benefits of taking risks, challenging one's self, and trying hard. Dweck (2006)

asserted that smart children with fixed mindsets always have a chance to succeed; because they are smart it may not be necessary for them to work hard and be persistent." For children with growth mindsets, on the other hand, success depends on making an effort to become smarter and taking advantage of opportunities for personal growth.

In addition to the concept of fixed and growth mindsets, Bandura and Dweck (1985) posited the concepts of fixed ability versus changeable ability. They investigated why some students were so caught up in having doubt about their abilities, while others simply accepted the extent of their abilities and focused on learning. Bandura and Dweck speculated that while the former students with fixed ability only focus on their non-changeable abilities, the later students with changeable ability might concentrate on developing their abilities through learning.

Deiner and Dweck (1978, 1988) distinguished between helpless and mastery-oriented children according to how they reacted to failure. Regardless of previous success on a task, helpless children demonstrated negative attitudes and responses of helplessness, and attributed their failures to their low abilities. On the other hand, children with mastery-oriented responses displayed solution-oriented self-instruction and positive attitudes. Accordingly, Elliott and Dweck (1988) asked "why two groups of children who are completely equal in ability would react to failure in discrepant ways" (p. 5). The results of their study suggested that when the value of a performance goal was emphasized, children who believed they had low abilities reacted to feedback about their mistakes in a manner characteristic of learned helplessness (i.e., with a negative attitude). When the value of a performance goal was emphasized and children believed they had high abilities, however, they showed mastery-oriented attitudes to find solutions to the problematic situation. Further, children who believed that they had low abilities tended to pass up opportunities to increase their skills. Deiner and Dweck observed that if the

value of a learning goal was strong, then children's beliefs about their skills were less relevant in determining their behaviors. They found that helpless children displayed a negative overall affect when faced with failure feedback, while mastery-oriented children displayed a positive overall affect.

Development of Locus of Control and Related Variables

Because the concept of internal and external LOC has been shown to be an important determinant of human behavior, scholars have had a great interest in variables that both affect the formation of LOC, as well as variables that are affected by LOC. Scholars have found that age and gender are important variables associated with the formation of LOC (Cunnignham & Berberian, 1976; Fiori, Brown, Cortina & Antonucci, 2007). Researchers have reasoned that because young children rely on the protection or nurturance of others they believe the results of their behaviors are controlled by external elements. However, as children develop, they recognize that their behaviors can influence outside events, and their beliefs shift from externality to internality (Bialer, 1961; Crandall, Katkovsky, & Crandall 1965).

This shift occurs because LOC moves from an external to an internal position as the child gains the ability to understand cause-and-effect relationships. Though the development of internal and external control continues through adulthood, formative development is almost complete when children are around 10 years old (Crandall, Katkovsky, & Crandall 1965). For this reason, Stipeck and Weisz (1981) and Lefcourt (1976) proposed age as an intervening variable in the relationship between LOC and achievement. Phares (1976) argued a stronger relationship between academic achievement and LOC exists in children than in adults. On the other hand, Findley and Cooper (1983) found a stronger relationship between LOC and academic achievement in adolescents than in children.

Sherman (1984) reported that the LOC scores of children between eight and twelve years old were meaningfully different both longitudinally and cross-sectionally. Nowicki and Strickland (1971) and Gnepp and Chilamkurti (1988) found that with increasing age, the LOC moves from internal to external. However, Park and Lee (1982), Seo (1988), and Lee (2004) found that the relationship between age and LOC was not significant. Stipeck and Weisz (1981) also found, for the most part, no consistent relationship between age and LOC.

The results of studies concerning the relationship between gender and LOC can be categorized according to three conflicting ideas: (1) women display a more internal LOC than men (Gruen, Korten, & Baum, 1974; Nowicki & Walker, 1974); (2) men display a more internal LOC than women (McGinnies, Nordholm, Ward, & Bhanthumnavin 1974; Parsons, 1970); and (3) there is no difference in LOC between men and women (Kim, 1983; Nowicki & Strickland, 1971).

Some studies have found a strong relationship between gender and LOC. Nowicki and Segal (1974) for example, found that while male students with internal LOC showed high achievement, female students with internal LOC showed high social participation. In another study by Cunningham and Berberian (1976), male students with internal LOC showed high self-esteem, while female students with internal LOC showed low self-esteem. Findley and Cooper (1983) and Lefcourt (1976) similarly proposed that a stronger relationship between LOC and achievement exists in males than in females, though Stipeck and Weisz (1981) suggested that social disability might serve as an intervening variable. In the recent study, Fiori, Brown, Cortina & Antonucci (2007) suggests that the relationship between religiosity and locus of control varies by gender and age.

Cultural Differences in LOC

Mueller and Thomas (2000) studied cultural differences in LOC and proposed that internal LOC tends to be more prevalent in individualist cultures than in collectivist cultures. According to Hofstede (1991), in individualist societies people maintain only loose social ties and commitments, while in collectivist societies people show strong, cohesive, and unquestioning loyalty to their families and other primary groups from birth onwards. Further, in individualist cultures, one's social identity is based on individual achievement and contributions. Individualist cultures emphasize personal initiative and achievement, autonomy, variety, pleasure, and personal financial security, all of which take precedent over group loyalty (Hofstede, 1980). On the other hand, in collectivist cultures, people are protected by their families and clans, and social identity is based on group membership. Thus, collectivist societies emphasize belonging. Deviance is punished, undercutting individual initiative, and the individual's opinions are seen as inferior to those of the group.

Several studies support the notion that people in individualist cultures have a more internal LOC. Using Rotter's I-E scale, Parsons and Schneider (1974) reported that students in the United States, a more individualist society, demonstrated significantly greater internal LOC than students in Japan, a more collectivist society. Further, using the same measure, Reitz and Groff (1974) found that U.S. workers displayed more internal LOC than workers from Mexico, Thailand, and Japan, all collectivist societies. Using the IPC (Internal, Powerful others, and Chance orientations) scales. Mahler (1974) also reported that U.S. university students had more internal LOC scores than Japanese students

As Stocks, April, and Lynton's study (2012) indicated that Confusion Asian (people living in China, Japan, Taiwan and Korean) exhibits a much more external locus of control than

Southern Africa because Asia is "collectivist nations and thus expected to exhibit more external locality (p.22)," children in South Korea tend to have a less internal LOC than children in the U.S. because South Korea is a more collectivist culture. However, Cheng, Cheung, Cio, and Chan (2013) asserted that external LOC does not carry the same negative connotations across cultures.

Special Needs Children and LOC

Studies on LOC in children with special needs have been conducted for several decades. A plethora of research suggests that children with disabilities tend to have a more externally-oriented LOC than children who do not have disabilities (Shogren, Bovaird, Palmer, & Wehmeyer, 2010; Wehmeyer, 1993; Wehmeyer & Kelchner, 1996). Several studies have compared LOC in typically-developed children and special-needs children (Bar-Tal & Bar-Zohar, 1977; Lefcourt, 1976). Studies have revealed that an external orientation is related to negative, maladjusted outcomes for both types of children (Wehmeyer, 1994), with concomitant difficulties in decision-making (Attanasio, 2003), and relationships with peers (Ollendick & Schmidt, 1987).

Children with Intellectual Disability (ID) and LOC

Intellectually disabled children have significant limitations in both intellectual functioning and adaptive behavior expressed in conceptual, social, and practical adaptive skills. In a 1961 study, *Conceptualization of Success and Failure in Mentally Retarded and Normal Children*, Bialer looked at differences in the conceptions of success and failure of "normal" or typical children and intellectually disabled (ID) children. He observed,

> Not all children, but only those who can conceptualize the relationship between their own performance or ability and the outcome of their goal-directed behavior, can be aware of success and failure. (p. 303)

According to Bialer, in the early stages of development, children do not have a concept of the relationship between their own behavior and the results of events. At first, they feel unpleasant when their goal-directed behavior is blocked, and they feel pleasant when they obtain satisfactory results. As development proceeds, children notice that their actions can affect the outcome of events, and they begin to direct their behavior to achieve their goals. When ID children realize that the achievement of their goals depends on their abilities, they recognize an achieved goal as a success rather than simply as a pleasant feeling. Conversely, when ID children realize that unfavorable results stem from their own shortcomings, they perceive these unachieved goals as failures that go beyond simple unpleasant experiences.

Bialer asserted that conceptually mature ID children recognize their failures as interrupted successes; therefore, they try to redo failed tasks to make them successful. However, immature ID children recognize a failure simply as an unpleasant situation, and tend toward pleasant situations. Further, because ID children mature more slowly, they may be slower to develop a conceptualization of success and failure than typical children, though their eventual ability to conceptualize success and failure is not qualitatively different.

Children with Learning Disabilities (LD) and LOC

Children with ID differ from children with LD in that the former confines the symptom to intellectual area, while the latter focuses on functional area related to learning. Although scholars have conducted numerous studies about special needs children, most have addressed LD rather than LOC because it is widely believed that children with LD are inclined to exhibit an

externally-oriented LOC, that is, that they see their lives as primarily controlled by external forces (Smith, Polloway, Patton, & Dowdy, 2008). Research has suggested that children with LD tend to have a more negative self-concept (Ames, 1978; Bryan & Pearl, 1979; Thomas; 1979) and a more external LOC than typical children (Bryan & Pearl, 1979; Roger, 1983). Academic achievement requires effort and persistence; therefore the high self-esteem occurs less among LD children who struggle to understand that their effort impacts outcomes (Chapman & Boersma, 1979).

Ames (1978), for example, found that negative self-perception was associated with external LOC in a study of 112 5th-grade boys and girls who were classified as high or low in self-concept that worked in pairs at an achievement-related task. He asserted that children with LD tend to attribute their success to others, not to themselves, and as a result, fail to recognize the successful outcomes resulting from their abilities and consider their abilities insufficient, thus limiting their academic effort and task persistence (Dweck, 1975). Accordingly, children with LD attribute their success to their teachers, ease of the task, or luck (Ames, 1978).

Chapman and Boersma (1979) reported that children with LD believed that their abilities had less of an effect on successful outcomes, and that an external orientation was formed around third grade and persisted until sixth. The LD children in their study believed that their insufficient abilities had a greater effect on the failed or negative outcomes they experienced. Even when a successful outcome directly resulted from their abilities, they developed a negative attitude about what they could achieve, which then was bolstered by negative experiences.

Boersma, Chapman, and Maguire (1979) reported that children with LD tend to display extremely low academic self-conceptions. Rogers and Saklofske (1985) suggested that even though children with LD generally display more external LOC belief tendencies than typical,

individual differences exist. Lincoln and Chazan (1979) asserted that such differences might be influenced by children's individual characteristics. They found that one group of LD children, for example, blamed external elements for their negative outcomes while another blamed themselves based on the belief that their own inadequate talent inhibited their ability to achieve goals, much like students with learned helplessness (Dweck, 1975).

Dweck explained that persons with learned helplessness believe that positive outcomes are not related to their ability or effort, and that their failure is inevitable. Rogers and Saklofske (1985) suggested that when working with children who show learned helplessness, therapists/instructors should provide opportunities for clients to recognize that effort and success or failure are related. For this reason, children with learned helplessness need programs that encourage them to have successful experiences using their abilities. In such programs, positive reinforcement should not focus on only the successful outcome, but on how hard students try and the effort that may lead to success (Rogers & Saklofske, 1985). Finally, Bendell, Tollefson, and Fine (1980) argued that children with LD and externally-oriented LOC function better under conditions of high structure, while children with internally-oriented LOC operate better under low structure conditions.

Children with Autistic Spectrum Disorder (ASD) and LOC

Children identified as autistic show one or more symptoms such as developmental retardation, impaired social interactions, communication deficits, and stereotypic behaviors, as well as symbolic and imaginative play for social communication. Estes, et al. (2011) reported that persons with Autistic Spectrum Disorder (ASD) believe their achievements do not stem from their abilities alone. Chevallier, et al. (2012) asserted that a social motivation deficit plays a significant role in ASD. Schultz, Kohls, and Chevallier (2012) explained that social deficits in

autism are an outcome of reduced social motivation that begins early in life and has deep developmental outcome, including fewer friendships and social isolation" Haskins (2012) explained that students with ASD find it difficult to make an effort to improve an outcome by their own will and show low motivation toward learning. Further, Ryan and Deci (2000) found that students with ASD have difficulty controlling their environments.

Children on the autism spectrum tend not to welcome change, which is important to expanding thought. Accordingly, Fouse and Wheeler (1997) suggested that using visual images—because of their stimulating quality—might be an effective way to improve academic achievement among children with ASD. Earles-Vollrath, Robbins, and Ben-Arieh (2008) argued that multi-dimensional stimulating media may help increase the motivation of children on the autism spectrum. With the use of the proper mediator, children with ASD can achieve self-reinforcement and self-management (Koegel, Koegel, & Parks, 1995; Stokes & Baer, 1977).

LOC Differences and Disability

Wehmeyer and Palmer (1997) could not find the difference of LOC between children with LD and ID, but they reported that children with cognitive disabilities of all kinds tend to exhibit a more external LOC. On the other hand, Mercer and Snell (1977) reported that children with ID tend to show a more external LOC than children with LD, however. Individual variation and sample size issues may affect the results of such studies, however (Mamlin, Harris, &Case, 2001). Bullis and Cheney (1999) reported that children with emotional and behavioral disorders display more problems in educational settings than children with other disabilities.

Shogren, Bovaird, and Wehmeyer (2010) conducted a study on students with ID, LD, and no disabilities. The results indicated that eight-year-old students with ID already display a more external LOC than their peers with LD or no disabilities. In addition, they found that between

eight and twenty years old, individuals with no disability and those with LD gradually increase their internal LOC, while students with ID show no difference in LOC with increasing age. Among this group, those with no disability always displayed higher internal LOC than those with LD. Wehmeyer and Palmer (1997), however, found conflicting results, that is, the students with ID in their study displayed more external LOC than those with LD.

LOC and Claywork

According to Anderson (1995), clay can help clients directly express their feelings. As it is created through direct touch, clay enables clients to engage in the creative process before cognition intervenes. Heimlich and Mark (1990) described how children roll and crumple clay as a tactile experience. As they do so, the shape of the clay is changed continuously, enabling children to immediately notice how it responds to their touch. Through this active process even timid children can recognize their effect on the clay, which an experience that may contribute to self-esteem and a sense of self-control.

Sekar and Aravind Raj (2007) found that in working with clay, children recognize various structures through touch, develop self-control, and experience control of the clay, all of which may serve to enhance a general sense of control in their lives. Similarly, White (2001) argued that children may find ways to control their emotions and behavior through claywork. Trantnik (2012) further asserted that understanding children's internal structure, which is related to internal LOC, is important for art therapists. He stated that children under stress have a tendency to criticize their inner world and ignore external elements. Though such unhealthy ideas translate to poor self-concepts, art therapy offers caregivers the chance to intervene to develop healthier self-attitudes.

Kwon, Seo, and Choi (2010) used clay in art therapy with three children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), none of whom were treated with drugs. Over the course of 20 sessions, they observed decreases in inattention of 42%, 48.1%, and 36.1 % and in impulsiveness of 48.8%, 50.0%, and 43.2%, respectively. At first, the children could not complete their artwork because claywork requires basic skills. Eventually, however, the children came to prefer clay to other materials, since it allowed them to use their own abilities in the production of art by manipulating and controlling the media. Further, their high interest in clay media motivated them to produce artwork by themselves. As the children recognized that they could control the clay by themselves without help, they found that could control not only clay, but also their work in school and at home.

Hermann (1995) conducted qualitative case studies of blind children with multiple disabilities in a school for the blind in Germany. He found that the children suffered not only from the loss of their vision, but also from the scarcity of plans and friends due to their visual impairment. One client, Marianne, was able to face her fears by creating images through clay. Another client, Stephanie, sculpted an image of herself in clay. Through these individual case studies, Hermann found that the use of clay in art therapy made it easier for children to bring their feelings into the session. Claywork enables children to mold their thoughts, fantasies, and emotions into controllable and tangible shapes, enhancing their perception of their internal abilities. Thus, Hermann's work reinforces the assertion that claywork in art therapy, when conducted in a safe and non-judgmental environment, may well strengthen children's recognition of their own abilities and empower them to take control of their lives. In such circumstances, children have a chance to gain or regain control and insight, and examine their inner worlds in more depth and detail, ultimately making it possible for them to enhance their self-control.

Hermann (1995) also suggested that children can strengthen accurate perception of their own abilities through claywork. Similarly, Kwon et al. (2010) found that children can heighten their beliefs in their abilities through repeated claywork. These findings support the hypothesis that claywork can enhance internal LOC for children with special needs.

Review of LOC Measures

The most recognized scale for measuring LOC is the *Rotter Internal-External Locus of Control Scale* (Rotter, 1966), and it is mainly used with adults. The Rotter measure derived from an early version of a questionnaire developed by Phares (1955); it evaluated the beliefs, attitudes, and social behavior of individuals in regard to reinforcement-responsibility. The measure was revised by W. H. James in 1957, resulting in the *James Internal-External Locus of Control Scale*, one of the earliest scales to assess LOC (the scale was developed for James' unpublished doctoral dissertation, completed under the supervision of Rotter). While Rotter's scale provides the respondent with only two possible answers, yes or no, James' scale uses a Likert-type scale ranging from 0 (strongly disagree) to 3 (strongly agree) for four factors: fate, luck, personal control, and powerful others. The James scale includes 60 items (half are filler questions); Dixon (1976) shortened it by eliminating the filter questions. The James scale was used in a few studies (Horak & Slobodzian, 1978; Srinvasan & Tikoo, 1992), but it has not been used widely (Halpert & Hill, 2011). Borich and Paver (1974) argued that the James measurement did not have high convergent or discriminant validity, causing inconsistent results.

When Rotter introduced the concept of LOC to the academic field (Halpert & Hill, 2011) with the *Rotter Internal-External Locus of Control Scale*, he used social learning theory as a base. Rotter theorized that people's beliefs about the extent to which they can control the events and situations they encounter will influence their reward expectancy and behaviors. Rotter's 23-

item scale, which used a forced-choice paradigm, was designed to assess whether a person believes that situations and events are under their own control. .

Some variation exists in the reported reliability and validity of the scale. Lange and Tiggemann (1981) found that test-retest reliability of the I-E test was .61, and Tong & Wang (2006), in using the scale for Chinese participants, found a test-retest reliability of .82. Borich and Paver (1974), however, failed to find reliability and validity in Rotter's scale as well as the *Levenson IPC Scales* (1973), the *James Internal External Locus of Control Scale* (1957), and the *Nowicki Strickland Locus of Control Scale* (1971). Rates over all comparisons were 66.6% for convergent validity and 12.5% for discriminant validity.

Though Kesternbaum and Hammersla (1976) questioned Rotter's use of filler questions, the Rotter LOC measure has been used widely in research studies. Burgess and Hamblett (1994) measured the LOC scores of smokers, non-smokers, and ex-smokers, and found no significant differences. Kesici (2008) measured the LOC of teachers and found that those with internally-oriented control showed a higher preference for democratic values than those with externally-oriented control. A study of LOC in boys in South Africa by Breet, Myburgh, and Poggenpoel (2010) revealed found that boys with an internal LOC had less aggressive tendencies than those with an external LOC. Cavaiola and Strohmetz's (2010) study of alcoholics found that participants with an internal LOC showed more receptive attitudes to treatment-related information than those with an external LOC.

A measure of LOC created by Levenson (1972), the *Levenson IPC Scale*, includes multidimensional measures of external and internal beliefs in three areas: Internality, Powerful Others, and Chance. High score of "Internality" refers a person who believe the world is unordered, and high score of "Powerful others" refers a person who believe that they are

controlled by powerful others for reinforcements through purposeful action. Lastly, high score of "Chance" refers a person who believes that change is in control. Levenson's measure is distinguished from Rotter's in several ways: (1) the IPC Scale uses a Likert-type scale; (2) participants are asked to interpret their own special experiences; and (3) the IPC Scale uses less ambiguous wording (Halpert & Hill, 2011). Levenson (1972) conducted validation studies on his scale, and justified the split of externality into multiple dimensions (Levenson, 1973).

In a study of South African students, Riordan (1981) used both the *Rotter I-E Scale* and the *Levenson IPC Scale* for South American participants, and insisted that he could not find the usefulness of Levenson's scale in his study for South African students, because he failed to relate the P (powerful others) score to the I (internality) and C (chance) score. Levenson's scale is one of widely used scales in academic field with *the Rotter's I-E scale*. Roddenberry and Renk (2010) found that Powerful others and Chances scores were positively correlated with stress levels. In another study, Lamanna (2001) found that emotional intelligence in adult women was positively correlated with internal LOC. Kennedy, Lynch, and Schwab (1998) found thvarious mental ailments, such as social phobia, major depression, mixed anxiety, panic disorder, or obsessive-compulsive disorder, were associated with different results in LOC scores according to the Levenson IPC Scale.

Reid and Ware (1974) developed the *Reid-Ware Three-Factor Internal-External Scale* to measure LOC. A multidimensional scale, it consists of 45 items with three sub-dimensions: Social System Control (SSC), Fatalism, and Self-Control. Reid and Ware (1974) validated these three factors in their study of college-aged students in an Introduction to Psychology class. They reported that the alpha coefficients for the 8-item Self-Control dimension, 12-item SSC dimension, and 12-item Fatalism dimension were 0.71, 0.76, 0.76, respectively. The

intercorrelations between these I-E dimensions were: self-SSC (r = 0.30), self-Fate (r ~ 0.27), ssc-Fate (r = 0.39). Though this scale is not often used, it can be found in some studies. Sadowski and Wenzel (1982) used it to investigate death anxiety and LOC in college students, and found that students with high Fatalism and SSC scores showed more death anxiety than those with low fatalism and social control scores. Gilmor and Reid (1978) reported that students with high internal control scores earned higher exam scores than students with higher external control scores. Prager (1982) also used the Reid-Ware Three-Factor Internal-External Scale in a study of LOC in college women and showed correlations to social systems with different levels of intimacy, such as isolation, pre-intimacy, and pseudo-intimacy, though no correlation between fatalism and self-control with intimacy.

Lefcourt devised the *Multidimensional Multiattributional Causality Scale* (MMCS) to measure affiliation and achievement in the general population (Halpert & Hill, 2012). Halpert and Hill (2010) noted that half of this scale consists of internality and the other half consists of externality, which enables it to measure internality and externality in a person. Lefcourt, Baeyer, Ware, and Cox (1979) reported that while the scale predicted affiliation-relevant behavior, it could not predict achievement-relevant behavior in a study of undergraduate students. Affiliation-relevant means striving to succeed while achievement-relevant refers to warm relationship with others. Powers and Rossman (1983) reported the validity of the scale in their study of 350 college students with a total .75 of Kuder-Richardson scale. Kanoy, Wester, and Latta (1990) found that 70 freshman female students in the U.S who reported high internal-control also showed higher academic achievement than those with high external-control.

Since the concept of LOC has been found to be relevant to health-related behaviors, in several health-related LOC scales are now in use (see Calhoun, Johnson & Boardman, 1975;

Furnham, 1987; Lau, 1988; Lau & Ware, 1981; Parcel & Meyer, 1978; Saltzer, 1982; Wallston & Wallston, 1981), though most of these specifically involve dental health. Though most LOC scales have been aimed at adults, scholars have shown interest in LOC measures for specific ages, leading to the development of LOC scales for children and preschoolers, which are being developed.

Bialer-Cromwell Children's Locus of Control Scale. Bialer (1961) developed the *Bialer-Cromwell Children's Locus of Control Scale,* a paper-and-pencil measure consisting of 23 yes-or-no items in which children were asked to answer self-report questionnaires in order to measure responsibility for an event's outcome and their behaviors.. The purpose of the scale (is "to test a tentative formulation of success-failure conceptualization as measured by certain developmentally determined behavior patterns in retarded and normal children" (Bialer, 1961, p. 303).

Land and Vineberg (1965) used the scale for both blind and sighted children, and found that blind children showed lower internal control than sighted children. However, some studies did not find Bialer's scale to be sufficiently reliable or valid. Halpin and Ottinger (1981) used the both the Bialer and Nowicki-Strickland Locus of Control scales, and found internal consistency reliabilities of .48 and .58 and test-retest reliabilities of .38 and .43, respectively. Gorsuch, Henighan, and Barnard (1972) reported that the test-retest reliabilities were only moderately significant among children tending toward internal LOC, and the correlation of ability with test-retest reliability was .86 ($p < .002$).

Despite some questions about the reliability and validity of the Bialer-Cromwell Children's Locus of Control Scale, Bialer has been used in many studies because it was the first such measure, and most widely-known. Guttentag (1972) used the scale to test for ethnic differences

in LOC in school children, but found no significance. Collier, Jacobson, and Stahl (1987) used the scale for gifted and non-gifted children, and found that gifted children tended to make internal attributions about their success and failure more than non-gifted children. Oden (1971) used the scale to investigate the relationship between creativity and LOC in children, but could not find a reliable relationship between these variables.

Children's Picture Test of Internal-External Control. Battle and Rotter's (1963) *Children's Picture Test of Internal-External Control* consists of six items, each presenting a descriptive cartoon that presents a situation about which the examiner asks, "What they would say?" No re-test reliabilities were reported for this measure.

Crandall Intellectual Achievement Responsibility Questionnaire. The Crandall Intellectual Achievement Responsibility Questionnaire has been used to assess children's beliefs about their intellectual-academic successes and failures (Crandall, Katkovski, & Crandall, 1965). The scale was based on Phares' (1955) scale, and later revised by James (1957). The Intellectual Achievement Responsibility Questionnaire is composed of 34 forced-choice items, each of which describes a positive or a negative achievement experience. The items ask children to say whether events are caused by children themselves or by their immediate environment.

Other scholars found that the Crandall scale had good internal validity and test-retest reliability. Furnham and Steele (1993) reported that the questionnaire resulted in test-retest correlations of between .66 and .74 and an internal consistency correlation of between .54+.60. Reid and Croucher (1980) used the scale for American children and found that the test-retest reliability coefficients over a period of a year were .43 for 1+, .36 for I-, and .43 for the I total score. Crandall, Katkovsky, and Crandall (1975) also mentioned that while LOC was influenced by age, gender, family size, ordinal position, and intelligence, it was not influenced by social

class. Barnett and Kaiser (1977) developed an expanded version of the scale; it examines the relationship between children's assumptions about their intellectual-academic successes and failure and various performance scores. The Crandall Intellectual Achievement Responsibility Questionnaire has been used in many studies. Barnett and Kaiser (1977) used the scale for boys and found that boys with high external scores had lower intelligence, achievement, and more defensive attitudes than boys with higher internal scores. Jones and McGhee (1972) used the scale with blind individuals and found that high internality correlated with high achievement motivation.

Nowicki-Strickland Locus of Control Scale. Nowicki and Strickland developed an LOC scale for children (1971), adults (1974a,1974b) and seniors (1974c). The paper-and-pencil-based measure is a forced-choice questionnaire consisting of 40 items for children and 34 items for preschoolers. The scale utilized Rotter's notions of internal and external control and reinforcement, which were categorized into affiliation, achievement, and dependency. Nowicki and Strickland (1971) reported the validity and reliability of the scale; test-retest reliabilities for participants in third, seventh, and tenth grade were .63, .66, and .71, respectively. The I-scores derived from the scale correlated strongly with the Intellectual Achievement Responsibility scale (third grade, $r= .31$, $p < .01$; seventh grade, $r= .51$, $p < .01$), the Bialer scale ($r = .41$, $p < .05$), and the Rotter scale ($N= 76$, $r = .61$, $p < .01$; $N= 46$, $r = .38$, $p < .01$). Borich and Paver (1974), however, failed to prove the validity of the scale. As already described, rates of validity over all comparisons were 66.6% for convergent and 12.5% for discriminant. Many scholars have used the Nowicki-Strickland Locus of Control Scales in their studies. Stephen (1972) conducted a study to assess the equivalence of the Nowicki-Strickland Locus of Control Scale for children with the other two scales and reported that intercorrelations among tests were very low. Collier,

Jacobson, and Stahl (1982) used the scale for gifted and non-gifted children and reported that gifted children showed a higher internal orientation.

Stanford Preschool Internal-External Scale. The Stanford Preschool Internal-External Scale was developed for children aged three to six years created by Mischel, Zeiss, and Zeiss (1974). The scale consists of a forced-choice format of 14 items measuring pre-school children's expectancies about the cause of an event, that is, whether it occurred because of their own behavior or external forces. The items are separated into positive and negative categories. The authors reported significant split-half reliabilities and test-retest reliabilities. For the positive subscale, negative subscale, and entire scale the split-half reliabilities were .14 ($p < .05$), 20 ($p < .01$), and .04, respectively. In a study of preschool- and kindergarten-age children, Chartier, Lankford and Ainley (1976) reported split-half reliabilities for the positive subscale, negative subscale, and entire scale of .22 ($p < .05$), .11 ($p < .01$) and . 33 ($p < .01$), respectively. The Stanford Preschool Internal-External Scale has been used in many studies. Burns (1985) used the scale to test his hypothesis that kindergarten children with internal orientations will complete tasks more successfully, with the results supporting his argument. Reiss and Dyhaldo (1975) tried to find correlations between LOC attribution and persistence in a specific task, but failed to find it. Curtis and Schildhaus (1980) and Kinnison (1988) used this scale for preschoolers and found that most preschoolers had an externally-controlled orientation.

The Choice of LOC Scale for Children with Special Needs

Children with disabilities usually display lower or slower intellectual development than normally-developed peers (Lee & Park, 1998), and typically show slower linguistic development. Fowler, Gelman, and Gleitman (1994) found that the grammatical complexity of 12-year-old children with intellectual disabilities was about the same as a non-disabled three-

year-old. Though the children with intellectual disabilities showed the same sequence of linguistic development as the normally-developed children in their study, children with ID showed several underdeveloped stages (rages from four to seven) than normally developed peers (Kim, 1991). In Korean elementary schools, children with autism, intellectual disabilities, and learning disabilities are grouped together in special needs classrooms from first to sixth grade (Sin & Choi, 2010). Thus, their developmental level of intellectual age might be younger than seven years old. For this reason, this study will select the LOC scale for preschoolers.

Two LOC tests are most widely used for preschoolers: the Nowicki-Strickland Locus of Control Scale for Preschoolers (1974b) and the Stanford Preschool Internal-External Scale (1974). For this study, the Stanford Preschool Internal-External Scale was selected for three reasons. First, the Nowicki-Strickland Locus of Control Scale for Preschoolers only replaces certain words from the scales used for elementary school children (e.g. "Mommy and Daddy" in place of "your parents") and has a similar structure to the scale for older children. On the other hand, the Stanford Preschool Internal-External Scale contains simpler sentence structures than those in the Nowicki-Strickland measure because it was developed only for preschoolers. In addition, the Nowick-Strickland scale is a forced-choice test in which children must choose yes or no for every question (e.g "Do you believe that you can stop yourself from catching a cold?"), while the *Stanford Preschool Internal-External Scal*e asks children to choose between two reasons (e.g. "When you are happy, are you happy because your did something fun, or because somebody was nice to you?") for an event. Because children with special needs find it difficult to memorize long sentences, some scholars have maintained that it is more effective to break a sentence down into clause (Lee, Kang & Kim, 2010). Finally, while the *Now*icki-Strickland scale for preschoolers is composed of 34 items, the Stanford Preschool scale is composed of 14 items.

Children with low intellectual levels display shorter attention spans than normally developed children (Inhelder & Piaget, 1958), which may limit their ability to answer 34 items.

Art Therapy for Children with Special Needs

Art therapy can encourage creative expression for children with many different types of special needs, such as children with autistic disorder (Dubowski & Evans, 2001). Numerous studies on special needs children and art therapy have identified social, linguistic, and behavioral improvements associated with art therapy (Emery, 2004; Spaniol, 1998). Moreover, art therapy, in that it employs non-verbal media, art therapy can increase the efficacy of interventions for children with disabilities (Freillich & Shechtman, 2010).

Greenspan, Wieder, and Simons (1998) asserted that behavioral problems in children with disabilities originate from negative psychological issues, such as the lack of functional personal relationships, rejection responses, and the frustration of basic desires. Accordingly, scholars have tried to find effective communication methods to mitigate the resistance of such children to treatment. Epstein (2003) observed that art-making activities encouraged children with developmental disabilities to form and express concepts through the use of both cognitive processes and visual perception. Further, art activities can reduce the anxiety and fear associated with poor language skills by providing an outlet for children to express feelings through non-verbal art materials.

Because children with disabilities display cognitive, physical, emotional, behavioral, and social problems they are often the recipients of special education and therapy from an early age (Greenspan, Weider, & Simons, 1998). Art making is a positive outlet for young children with disabilities because they tend to enjoy art activities. For this reason art making has the potential

to play an important role in developing latent abilities and in stimulating emotional, social, and holistic growth (Henley, 1992; Rubin, 2005).

Art education and art therapy both use art materials and artistic techniques. Art education focuses on curriculum, planning, and artistic evaluation, however, while art therapy for children focuses on children's psychological and social conflicts and problems based on individual needs (Swenson, 1991), and often centers on social communication skills (Kramer & Wilson, 1998; Menzen, 2001). Art therapy for children with disabilities emphasizes cognitive, emotional, social, and physical development through creative experiences (Henley, 1992). It helps special needs children to uncover their potential and express their desires and feelings. For these reasons, art therapy can help special needs children with psychological conflicts and problematic behaviors.

The purpose of education for special needs children is human self-realization, just as with normally developed children (Choi, 2000). One important goal for children with mild disabilities is developing confidence. Yet, many young children with disabilities in typical elementary-school settings frequently display a lack of confidence due to accumulated failure experiences (Han, 1997). Art therapy is one way to improve low self-confidence and self-concept. Lowenfeld (1987) asserted that art activities are one of the easiest ways to give such students confidence and boost expressiveness. He found that art activities promoted cognitive integration for ID children, providing experiences that lead to feelings of satisfaction (Han, 1997). Further, art-making activities, when geared to a child's particular level of development, can induce a sense of achievement that strengthens the child's self-concept (Dalley, 2002; Song, 1997).

Art Therapy for Children with ID

Children with ID have delayed cognitive, linguistic, emotional, and physical development.

These delays may cause problems with interactions with others and isolation in groups. As a result, children with ID may experience loss, anxiety, frustration, and isolation. Parker and Lipscombe (1981) noted that timidity in children is a socially maladaptive behavior that may be linked their denial of their abilities. A lack of social skills in children may lead to failures that foster an externally oriented LOC.

Artwork by children with ID provides a window into their inner worlds. Kim (2009) discussed the usefulness of art therapy for children with ID, particularly in terms of their linguistic expression. Lee (2009) proposed that ID children need a productive therapy program that reduces failure and nurtures a sense of achievement. A focus on creative activities using age-appropriate art materials will aid in this process since such children need positive feedback to reduce maladjusted social and behavioral characteristics. .

M. Kim (2011) used 3D art in art therapy with adolescents with ID. She found that flexible changing in their idea was difficult for people with ID, but that 3D art-making activities encouraged participation. She emphasized that the use of both 2D and 3D art together helps individuals to become more flexible in their thinking. In her study, group art therapy for ID participants enhanced social skills, and the group members learned to discuss and alter ideas with other group members. On a measure of self-control, participants' scores increased 42% from pretest to posttest.

A study using Mandala drawing for children with ID was found to enhance children's social skills, improve their sense of achievement, and decrease dependence on teachers (Kang, Choi, & So, 2010). These results suggest that art making promotes not only social skills, but also emotional development and a sense of control and accomplishment in children.

Art Therapy for Children with LD

Children with LD have a tendency to refuse challenges because of their accumulated failures, so it is important to encourage LD students to gain a sense of accomplishment through successful experiences (Freilich & Shechtman, 2010). Art therapy can reduce resistance to new educational experiences because of its innately spontaneous quality (Henley, 1991). Choi (1998) noted that language is one of the most serious problems for children with LD, but that art making can help LD students learn how to express themselves without language. Making art is an activity that readily provides LD children with the feeling that they can be successful using their own abilities. Choi found that art making enables students to express their imagination and other creative impulses in a way that makes them understandable to others. Moreover, she found that the sense of accomplishment children gain from art making generates a sense of confidence, which also reduces resistance to change.

Between 38% and 78% of children with LD also have emotional disorders (Fessler, Rosenberg, & Rosenberg, 1991; Fristad, Topolosky, Weller, & Weller, 1992). The treatment most frequently used for children with LD is assistance with academic difficulties, based on the assumption that improved academic achievement will impact self-esteem, improve interpersonal relationships, social status, and result in fewer emotional difficulties (Morgan, Farkas, Tufis, & Sperling, 2008).

Art materials can be used in a particular way in therapy to approach the emotional concerns of LD children (Metzl, 2008). According to Freilich and Shechtman (2010), in guiding individuals to create images, art therapy can bring repressed emotions into awareness and enhance exploration of all emotions. Similarly McMurray and Schwartz-Mirman (2000) maintained that the use of art therapy decreased resistance to therapy and to encourage the

expression of both feelings and experiences.

Studies have indicated that art therapy can help children with LD to control conflicts (Park, 2009), manage negative psychological patterns (Kim & Lee, 2002), decrease negative self-concepts and behaviors (Park & Beak, 1999), and increase their learning motivation (Jeon & Choi, 2001; Kim, 2003). Oh and Choi found that art activities with dynamic interaction helped children with LD to improve self-esteem, learning motivation, and increase positive self-image. Self-esteem and learning motivation are directly related to self-control and LOC (Oh & Choi, 2010), both of which connected with self-efficacy.

Art Therapy for Children with Autism

Autism is a pervasive developmental disorder leading to impairments in social interactions, interests and activities, and linguistic development (Emery, 2004). Greenspan and Weider (1998) reported that 94% of children with autism show improper sensory processing patterns; therefore, art activities using tactile media and sensory integration can be helpful. Children with autism display severe language deficits, relational difficulties, desire for repetition, exacting attention to detail, and rigid behaviors. One characteristic of the art of children with autism is the repeated drawing of shapes, such as numbers or the alphabet (McKean, 1994). The use of various art materials by children with autism enables them to experience a greater variety of stimuli. Plus, exploring new media may encourage the acceptance of others. Schleien, Mustone, & Rynder (1995) explained that using diverse media, such as cutting, punching, touching, and rubbing, may help to resolve negative feelings. These pleasant experiences may reduce maladjusted behaviors.

Kim and Choi (1996) reported that using clay helped children with autism to be more active in their lives because clay-making stimulated diverse thinking. Lowenfeld (1987) emphasized the

importance of skin contact in early life and explained that clay-making activities helped clients enhance self-perceptions and self-conceptions. Furthermore, Robbins (2001) explained that clay figures represent powerful emotions that were inaccessible to clients through previous media (Robbins, 2001). Moreover, Malchiodi (2003) suggested that children with autism can decrease their maladjusted behaviors by expressing desires through art. Art-making activities help to develop positive self-images for autistic children (Dubowski & Evans, 2001).

Achievement Experiences through Art

Studies on the relationship between art making and achievement have reported many benefits for clients with the use of clay as an art-therapy material. Some studies have claimed that when a sense of achievement is obtained through art activities, it can influence other subject areas (Eisner, 1998; Forseth, 1980; Mclaughlin 1990; Murfee, 1995). Catterall (2012) also detected a strong relationship between art and a sense of achievement.

A 12-minute video created for the Goals 2000 Arts Education Partnership, *The Arts and Children: A Success Story* (2010), emphasized the role of art and its fundamental value in academic situations. Elizabeth Murfee (1995), who introduced the video, mentioned that children's engagement in art is related to their success, since such activities produce a heightened sense of achievement. Murfee's study compared the Scholastic Aptitude Test (SAT) scores of two student groups, one that was enrolled in an art course and one that was not. She reported that students in the art group scored 59 points higher on verbal and 44 points higher on the math portion of the SAT achievement test than students with no course work or experience in the arts. Eisner (1998) similarly found that art activity was associated with higher academic achievement scores and better academic performance. Nevertheless, Eisner argued that children should experience art for its own intrinsic value.

According to McLaughlin (1990), there are many areas in which the arts contribute to creative thinking: cognitive, affective, and psychomotor skills, learning styles, communications skills, literacy skills, cultural literacy, choice-making, group decision-making, and self-esteem. Like other researchers, McLaughlin concluded that arts activities also results in improved student performance in other subject areas. Forseth (1980) claimed that engagement in art activities is related to children's achievement attitudes.

In a study of art therapy for students in alternative schools, Kim (2006) found that self-esteem and internal LOC were enhanced in students who engaged in anthropocentric art therapy. Kim used *the Rotter I-E Scale* (1966) to measure self-esteem and LOC scores in pre- and post-tests. She reported that self-esteem was raised significantly ($t(24) = -2.52$, $p < .01$), and LOC score was raised as well ($t(24) = -2.32$, $p < .05$) following 2D and 3D mixed media. Kim concluded that group art therapy promoted a sense of confidence in cognitive and emotional arenas, and strengthened the belief in students that they had control over their lives.

Conclusion

Both art therapy researchers and practitioners have been interested in the differential effects of the art media that is used in art therapy. Three-dimensional art media, and in particular, clay, exposes children to the multi-dimensional aspects of art and encourages those with fixed ideas to broaden their thinking. The tactile and tangible qualities of clay seem to move past the defense systems of children with special needs, who often experience repeated failures and sometimes refuse to attempt new experiences. Sensory activities with clay, including touch and rhythmic action, dominated primitive human experiences (Ogden, 1989), which encourages children to involve in art activity spontaneously.

Since children with disabilities have a tendency to exhibit an external LOC, they attribute

the outcome of events to external entities or to the environment. Through claywork, then, children with special needs (learning disabilities, intellectual disabilities, and autism) may experience a change in their core control beliefs. Perhaps through manipulating and controlling the clay these children may experience success and possibly even improved academic achievement. Manipulating clay may offer special needs children the opportunity to strengthen their internal LOC beliefs.

CHAPTER THREE

METHODOLOGY

This chapter outlines the methods used in this study of media dimension differences on the locus of control (LOC) of children with special needs in art therapy. This chapter addresses the steps taken to complete this research endeavor. The hypothesis is reviewed, and the research design is described. Information about the participants is presented along with how they were identified. The instruments used and the specific procedures performed are also discussed. The internal validity and the method of analysis are examined and the limitations are identified.

Hypothesis

The purpose of this study was to identify how 2D and 3D art materials differentially affected the LOC of children with special needs in an art therapy group in a normal elementary school in Korea. The hypothesis is that special needs children in the art therapy group using 3D clay-based art materials, as opposed to 2D art materials, will have an increased internal locus of control as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974). The research question is: What is the differential impact of 2D and clay-based 3D art media on the locus of control of South Korean special needs children in art therapy as measured by SPIES?

Research Design

The study utilized a mixed methods quantitative pretest-posttest control group design. A randomized control trial was implemented (Doll, 1994). A quantitative measure was used to investigate the impact of art media differences on the LOC scores of special needs children in art therapy. Therapist observations of both participant behavior and art work and teacher behavior

observations were used as qualitative indicators of therapeutic change.

Participants were randomly assigned to one of three treatment conditions: (1) 2D art media only group, (2) 3D clay-based art media only group, and (3) a control group with no artistic intervention. The primary goal of the randomized control trial was to test the effect of the intervention relative to control conditions. Randomization helped to ensure that every subject had the same possibility of being divided into specific groups.

The researcher investigated elementary schools in Seoul, South Korea to find ones with at least two special classes. One elementary school, after assenting to participate in the research, was randomly contacted by the researcher. 15 special needs children in the elementary school were randomly assigned into the three groups; the proportion of gender was fixed for internal validity. There were about 30 special needs children in usual Korean elementary schools. The different art media that was used in this study was randomly assigned as well. After assigning the participants into three groups, the researcher briefly explained the purpose of the study to the participants and their parents and presented the consent form. If the subjects refused to participate in this study, the researcher randomly selected another member. The three groups received different interventions: the first group used only 2D media, the second group only clay-based 3D media, and the third group did not engage in an artistic intervention.

The 2D group was offered various sizes and colors of paper and canvases, pencils, erasers, watercolors, brushes, pastels, conte, charcoal, acrylic paints, oil pastels, various paper, glue, and color ballpoint pens. The clay-based, 3D group was offered clay, clay tools, fabrics with various textures, and natural materials such as grains, wood, and paper dishes.

Participants

The 15 children in the study ranged in age from age 7 to 12 and were enrolled in a special class at an elementary school in South Korea. Seven were female, and eight were male. All were native-born Koreans. After random selection of the children, the researcher obtained consent from their parents for the children to participate in ten art-therapy sessions, along with release forms to allow photographs to be taken of any artwork created during the study.

There were two special educator in the school, and the teacher who interviewed for this study was chosen randomly either. Consent was obtained from the teacher prior to the interviews conducted for qualitative data collection.

Measures

Both quantitative and qualitative measures were used in this study. The Stanford Preschool Internal-External Scale (Mischel, Zeiss, & Zeiss, 1974) was used for quantitative data collection. Qualitative data was obtained through observation, interviews, and visual artifacts.

Quantitative Measure

The *Stanford Preschool Internal-External Scale* (SPIES) is a LOC scale developed specifically for preschoolers to measure the degree of belief that the outcome of an event is contributed to by their own behavior or abilities (Mischel, Zeiss, & Zeiss, 1974; Rotter, 1966). Though several LOC scales exist (Bialer, 1961; Crandall, Karkovski & Crandall, 1965; James, 1957; Levenson, 1973; Lefcourt, 1981; Mischel, Zeiss & Zeiss, 1974; Reid & Ware, 1974; Rotter, 1966; Strickland, Nowicki & Duke, 1971), the SPIES was deemed most appropriate for this study for several reasons. First, children with special needs display low intellectual development, and often test below age seven (Fowler, Gelman & Gleitman, 1994; Kim, 1991; Lee & Park, 1998), therefore requiring a scale designed for preschool children. Two such LOC

scales for preschoolers are the SPIES and the Nowicki-Strickland Locus of Control Scale for Preschoolers. While the SPIES was developed specifically for preschoolers, however, the *Nowicki-Strickland Locus of Control Scale for Preschoolers* used the same sentence structure as the corresponding scale for older children, and simply replaced particular terms. Thus, the SPIES scale was easier for a younger population.

Another reason why the SPIES was chosen is that the *Nowicki-Strickland Locus of Control* for preschoolers allows for only forced-choice, responses while the SPIES asks children to choose between two statements, making it more effective for children with special needs who show difficulty in memorizing long sentences (Gathercole & Pickering, 2003). Finally, because the *Nowicki-Strickland Locus of Control Scale* for preschoolers contains 34 items, and the the SPIES only 14, the latter is more appropriate for children with special needs who often have a shorter attention span than normally-developed children (Inhelder & Piaget, 1958; see Appendix G for the SPIES questions)

I+ scores indicate the total number of positive questions answered with the internal alternative, and I- scores are the total number of negative questions answered with the external alternative (Mischel, Zeiss & Zeiss, 1974). One's total score is the sum of the I+ and I- scores; therefore 6 is the maximum possible I+ score, 8 is the maximum possible I- score, and 14 is the maximum possible total I score. The scale measures only internal direction because the SPIES was patterned partly after the Crandall Intellectual Achievement Responsibility Scale, which has the same directions as the SPIES.

The test is administered orally and to an individual child. The researcher repeats the two answers, and child may not answer until the questions are stated fully. Before any of the actual

test items is given, three training questions are asked to accustom the children to procedure: (1) "Is your name David or Steve [the correct answer], Steve or David?" (2) "Are you a girl or a boy, a boy or a girl?" (3) "Am I [the tester] lady or a man, a man or a lady?" (Mischel, Zeiss & Zeiss, 1974, p. 269).

Mischel, et al. (1974) and Chartier, Lankford and Ainley (1976) provided reliability results for the SPIES. Mischel et al. found that split-half reliability for the positive subscales was .*r*= 14 ($p < .05$) (for the entire scale, it was *r*= .04), and for negative subscales it was *r*= .20 ($p < .01$). Chartier et al. found that the split-half reliability for the positive subscale was *r*= .22 p<.05) (for the entire, it was *r*= .33, $p < .01$), and for the negative subscale, *r*= .11 (p <.01)

Qualitative Measures

Qualitative research measures also were used to investigate changes in the participants' beliefs and attitudes. Interviews provided data determined by the participants, while observation provided data from the perspective of the researcher. The researcher also utilized photographs of the participants' clay-based art as visual data that served to triangulate the qualitative analysis.

Interviews. Interviewing is a tool that enables the researcher to gather information from the perspective of the interviewee (Park & Kim, 2006). In this study, the researcher interviewed the special education teacher who actually educates the special needs children in this study. The purpose of the interviews was to gather information about the children' attitudes toward academic achievement in their schools. The topic of the interviews depended upon the teacher's individual experiences with each children, including the teacher's perceptions of the participants' academic motivation, behavioral characteristics, and attitudes toward their classes, as well as conversations with the participants. One question, for example, was, "Could you describe the participants' attitudes in your classes, for example, when they meet difficult tasks?" (the teacher

educate general subjects to the children). The interviews were semi-standardized in order to affix a certain amount of form, order, and context, though the questions were changed situationally in order to examine related topics.

Observations. Observation was used to gather data on the characteristics of the participants' linguistic and nonlinguistic behaviors (Park & Kim, 2006). Observation is a method of gathering data that does not rely on participants' responses, but is rather acquired by the researcher.

Park and Kim (2006) noted that observation is a good method for researchers to use when their subjects' linguistic-expressive ability is low. Thus, observation is particularly appropriate for children with special needs, many of whom show a lack of linguistic development. Observations of the art-therapy sessions conducted for the study helped to reveal information about the participants' attitudes and reactions to their artwork, as expressed through facial expressions, conversations during art-making, body movements, and dynamics between group members.

Art pieces. The researcher observed children's art making and final pieces. The children's art making process offered the information of how children's attitude toward art making is changed. Their final art pieces were used to understand how much they developed their clay making skills through comparing a series of their claywork.

Procedure

The researcher provided drawing and painting art material and paper to 2D group. The researcher explained the introduction of the art therapy program each day before children starting the art making process. The researcher tried to offer help children when they require, but put priority on verbal explanation. The researcher used positive statements when children

accomplish some outcome. Children are encouraged to explain what they felt during and after art making process if verbal expression is possible. The 3D group was treated as same procedure as the 2D group, but the material was replaced as clay. The researcher demonstrated basic techniques when a new skill was required for 3D group, and the completed cups were fired in the klin. There was no intervention for control group.

Data Analysis

The data for this study is generated from the participants' LOC pre- and post-test scores using statistical methods including one-way ANOVA, Shapiro-Wilk Statistic, post hoc test (Student-Newman-Keuls, Duncan, and Keuky HSD test), paired samples test, and Wilcoxon singed rank test, and from a qualitative analysis of observations, interviews, and artwork.

The SPIES data will be analyzed by using ANOVA in SPSS statistics version 18.0: The LOC change between three groups will be analyzed using ANOVA. The researcher will use an ANOVA for the pretest to ascertain if there are any group differences. If there are no group differences, post-test LOC scores will be analyzed by ANOVA in an attempt to uncover group differences. Also, post-hoc t-test will be used to identify differences between groups: (1) between the clay 3D-only group and the 2D-only group; (2) between the clay 3D group and the no artistic intervention group; and (3) between the 2D-only group and no artistic intervention group.

Limitations of the Study

The quantitative elements presented may have been hard for children with special needs to complete because of their intellectual levels. The *Stanford* SPIES (1974) had strong validity and reliability in previous studies (Chartier et al, 1976; Mischel et al., 1974), yet these were on typically developed children. The children also may have found it difficult to understand and

answer the test questions. In addition, the three groups involved in the study were at a same elementary school, so both the testing environment and environment for the art therapy sessions were different.

Moreover, in this study, the researcher served as the tester, interviewee, and therapist, which could have introduced a subjective bias and have had a negative influence on validity and reliability. Further, though Durst and Schaeffer (1987) stated that "Qualitative techniques can personalize research and tie it more closely to values and attitudes as actually lived by students rather than to those processes on surveys, tests, and other scales" (p. 22), the researcher's involvement could have introduced excessive subjectivity into the qualitative data analysis. Since the background of the researcher is Ceramics, and the researcher has a bias toward 3D claywork that it is beneficial for the children with special needs, the children might be influenced by the attitude of the researcher. Furthermore, the bias of the researcher might influence on interpretation of the result of observation in a positive way to support the idea that clay is better media for children with special needs.

However, the addition of qualitative study qualitative technique can make the study stronger and more relevant to understand art therapy treatment. Since the researcher interview children and teacher, conduct the art therapy sessions, and analyzed the collected data, the researcher can have a strong understand about the whole process of the study.

Lastly, since the sample size of this study was small, the location limited to South Korea, and the participants exclusively Korean, the results may not have implications for a global population. Because this study was designed specifically for Korean special-needs children who live in Korea and are instructed by Korean art therapists, the results of study might differ from that which would arise as a result of art therapy with special needs children in other cultural

environments. Finally, because the participants of this study were special needs children in an elementary school, the generalizability to other age groups is limited.

Conclusion

This chapter provided an overview of the research questions, the research design, the sample, procedures, instruments, data analysis, and limitations of this study. The next chapter provides the results of the quantitative and qualitative analysis of the study data.

CHAPTER FOUR

RESEARCH FINDINGS

The hypothesis of the study was, special needs children in an art therapy group using three-dimensional art materials, specifically clay, will have greater improvement in their locus of control (LOC) as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) than children in a group using only two-dimensional art materials.

This research utilized qualitative and quantitative elements to study the use of art materials in art therapy with special needs children. For analyzing the quantitative data, the researcher used SPSS version 18.0. First, ANOVA and post-hoc *t*- tests were used to identify group differences at pretest. After verifying that there were no group differences at pretest, the researcher analyzed the scores of pre-and post-tests using the paired *t*-test test and Wilcoxon signed rank test.

Qualitative data from observation, visual analyses, and teacher interviews were also used to explore the result of the study. Changes in attitude towards their academic and school life was discussed through the teacher interviews; the children's artwork and creative process during art making were observed by the researcher.

This chapter begins with a discussion of the findings from the quantitative analyses of the three groups: the group that used only two-dimensional art materials, the clay-based three-dimensional art material group, and the group that had no artistic interventions. Next, a discussion of the qualitative data and how it correlates to the quantitative data follows, and the paper concludes with a cross case analysis.

Quantitative Analysis

The hypothesis of this study was special needs children who use 3D clay-based art

materials in an art therapy group would gain a more internal LOC as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) as compared to comparable children using only two-dimensional art materials or engaging in no art activity. In order to examine changes in locus of control after participation in art therapy, the children took the SPIES at pretest and post- intervention. The scores were analyzed by ANOVA and *t*-tests using SPSS. LOC was measured on a continuum from external to internal. The SPIES test consists of 14 questions with a forced choice format. Each question poses two answers, one indicates internal LOC and the other, external LOC; only the option that is related to internal LOC is given a score of 1. Accordingly, the total score ranges from 0 to 14. A low score means the student has less internal LOC and a high score means the student has a high internal LOC. The results of the total scores for all three groups can be seen in Table 6.

Homogeneity Tests for the Pre-test

To investigate significant changes in LOC in the children who participated in art therapy programs, an investigation of group differences at pretest was necessary. Group differences at pretest influence outcomes at posttest. For the homogeneity test, one-way ANOVA was used. The model of analysis of variance was set as follows:

$$Y_{ij} = \mu + \alpha_i + \varepsilon_{ij} \quad , \quad \mathrm{i} = 1,2,3\ , \mathrm{j} = 1,2,..,5$$

$$\varepsilon_{ij} \widetilde{iid}\ N(0, \sigma^2)$$

Before analyzing the data, it was essential to examine if the assumption about the residual of the set up model was proper (see Table 7). The residual is the difference between the predicted value and observed value Y paired with the independent variable X (Lee, 2010).

Table 6. *Pre-and Post-tests Scores of the SPIES*

Group	Name	Age	Sex	Pre-test	Post-test	Changes
2D	Sera	10	F	3	7	+4
	Kathy	7	F	5	7	+2
	Liam	11	M	4	5	+1
	Jack	10	M	4	7	+3
	Becky	10	F	6	6	0
3D	Brandon	11	M	4	7	+3
	Chris	10	M	4	8	+4
	Jenny	10	F	3	9	+6
	Emma	10	F	6	7	+1
	Brian	12	M	5	10	+5
Control	Ray	11	M	5	5	0
	Nathan	9	M	3	3	0
	Olivia	8	F	4	5	+1
	Ethan	9	M	4	4	0
	Sophia	9	F	5	6	+1

As seen in Table 7, the Shapiro-Wilk statistic, which tests the normality of the residual, was .925 with a *p*-value = .226. Therefore the null hypothesis, which is "the residual follows normal distribution," was not rejected under the *p*-value .05. . Furthermore, in Figure 1, the Q-Q plot, the test for examining normality, illustrated that the scores follow normal distribution

Table 7. *Test of Normality for Pre-test*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
pre_error	.182	15	.197	.925	15	.226

a. Lilliefors Significance Correction

Table 8. *Test of Homogeneity of Variances for Pre-test*

Levene Statistic	df1	df2	Sig.
.338	2	12	.720

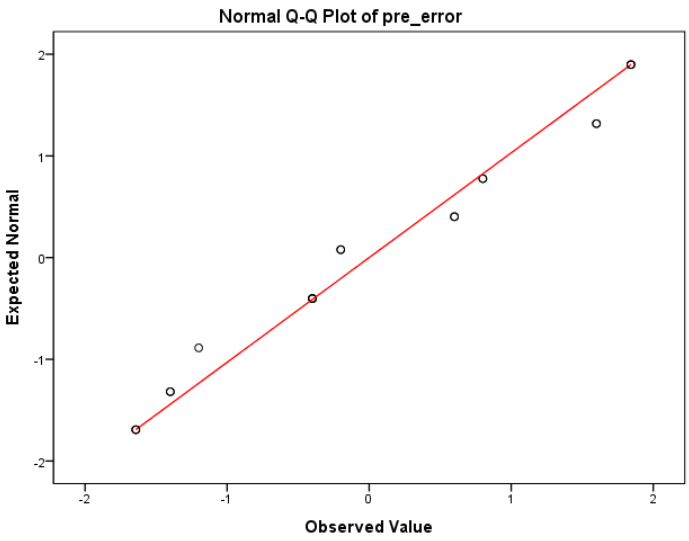


Figure 1. Normal Q-Q plot of the pretest error. The data was assumed to be a normal distribution because the points were close to the line and there was no outlier.

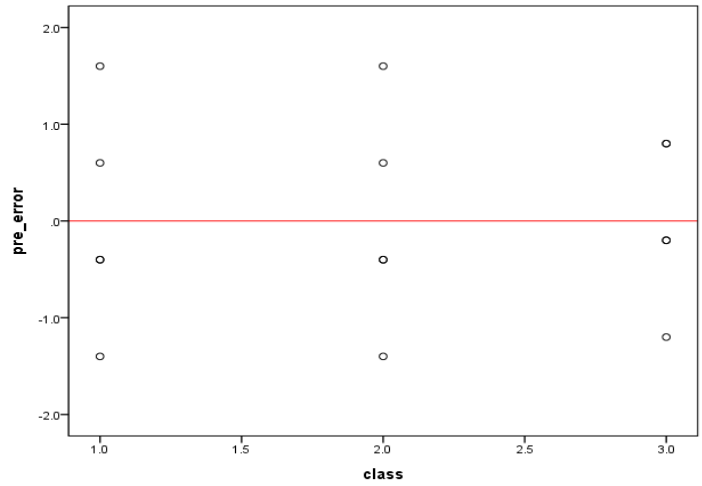


Figure 2. Homoscedasticity; residual plot of the pre-test score. No differences in standard variation among the three groups were found because the distribution of points was unbiased, and displayed homoscedasticity.

. When the two distributions are compared and found to be similar, the points in the Q-Q plot will follow the normal line. The Levene statistic, the test for homoscedasticity was .338 with *p*-value = .720 (see Table 8). With a significance level $p = .05$, the null hypothesis is significant. Moreover, Figure 2 illustrated that the residual was randomly distributed with 0 as the center (1.0 = 2D group,2.0 = 3D group, and 3.0 = control group). Through this result, homoscedasticity, or the distribution of the population, did not show significant differences. Lastly, using the Durbin-Watson statistic, independence was tested. The result was: Durbin Watson = 2.27. When the Durbin-Watson score ranges from 1.3 to 3.7, the residual is independent. Some authors call this a prediction error, but it will be described as the residual in this report. Since the score was 2.27, which is close to 2, the residual was found to be independent.

Based on these statistical results, the assumption about the residual was appropriate; therefore, conducting a one-way ANOVA was possible. The results of the ANOVA (to compare three groups with a SPIES test at pretest) are presented in Table 9 and Table 10.

In Table 9, the ANOVA analysis was $F = .061$ and the *p*-value = .941. Therefore, the null hypothesis was accepted. That is, the scores of SPIES at pretest did not reveal group differences and therefore it was appropriate to examine the SPIES results at posttest. For the post-hoc test, the Duncan and Student-Newman-Keuls statistics were used. In Table 10, the mean score of the control group (no art group) was 4.2, and the mean of both 2D group and 3D group was 4.4. Both statistical tests found that there were no significant differences among the three treatment groups at pretest. According to the results above, all three groups had the same level of internal LOC before the intervention and the homogeneity among the groups was identified

Table 9. *Homogeneity Comparison for the Pre-test Using ANOVA*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.133	2	.067	.061	.941
Within Groups	13.200	12	1.100		
Total	13.333	14			

Table 10. *Post Hoc-tests for Pre-test*

	Class	N	Subset for alpha = 0.05
			1
Student-Newman-Keuls[a]	3	5	4.20
	1	5	4.40
	2	5	4.40
	Sig.		.951
Duncan[a]	3	5	4.20
	1	5	4.40
	2	5	4.40
	Sig.		.779

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

. Therefore, if significant differences in LOC occur post intervention, the differences may be the effect of the art intervention, rather than the effect of the pretest.

Homogeneity Tests for the Post-test

A homogeneity test for LOC after art therapy intervention was conducted next. Since there were three groups to be tested, a one-way ANOVA was used for the analysis. First, the assumption for the residual was examined. The assumption was as follows:

1. The observations are random and independent samples from the populations. This is

commonly referred to as the assumption of independence.

2. The distributions of the populations from which the samples are selected are normal. This is commonly referred to as the assumption of normality.

3. The variances of the distributions in the populations are equal. This is commonly referred to as the assumption of homogeneity of variance

The examination of the assumption can be identified through the value of the residuals from the differences between the observed value and predicted value. Based on the residuals, the assumption of normality can be verified by the Shapiro-silk test (see Table 11) and Q-Q plot (see Figure 3), and the assumption of independence can be verified by the statistical value of Durbin Watson. Furthermore, the assumption of homoscedasticity can be identified through the Levene test.

Table 11. *Tests of Normality for Post-test*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
pos_error	.183	15	.190	.945	15	.452

a. Lilliefors Significance Correction

Table 12. *Test of Homogeneity of Variances for Post-test*

Levene Statistic	df1	df2	Sig.
.462	2	12	.641

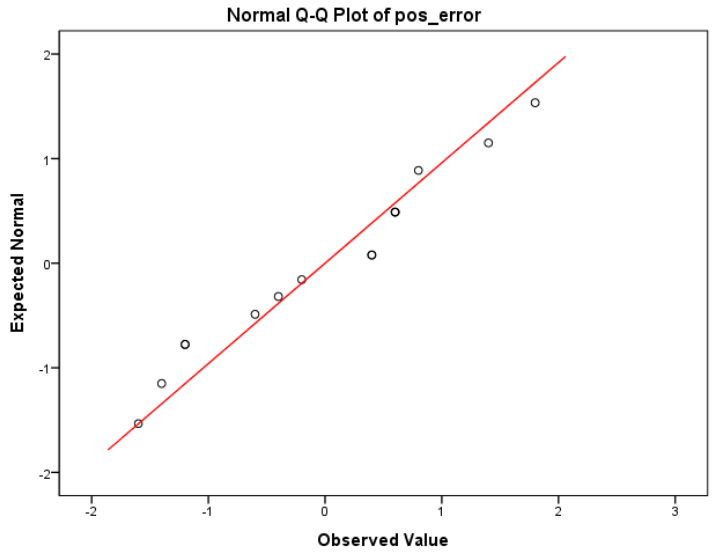


Figure 3. Q-Q plot of the post error. The data was assumed to be normal distribution because the points were close to the line and there were no outliers.

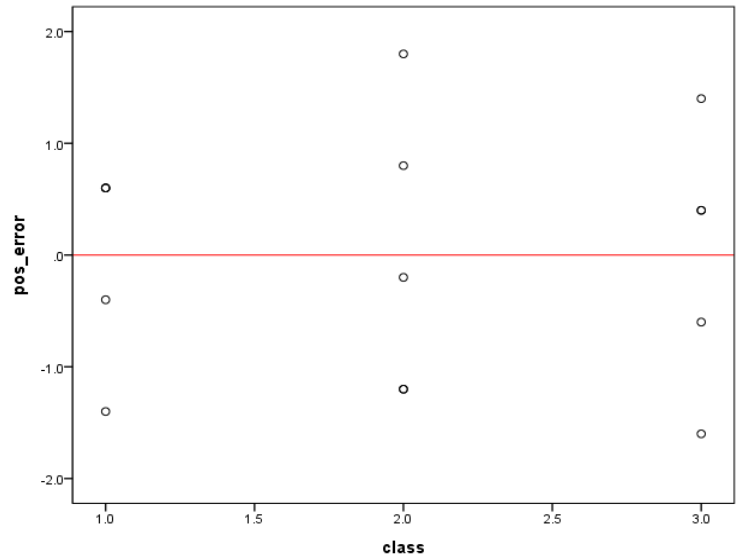


Figure 4. Homoscedasticity; residual plot of the post-test score. No differences in the standard variation among the three groups was found because the distribution of points was unbiased, and displayed homoscedasticity.

The result of the Shapiro-Wilk test, which examined normality, was .967 with a *p*-value = .812 (see Table 11). Therefore the null hypothesis was not rejected at the significance level of .05. Furthermore, since the Q-Q plot showed that the data fit the Q-Q line (see Figure 3), it

can be concluded that the residual followed normal distribution. Second, the Levene statistic, which examined the equal variance, was.462 with a *p*-value = .641 (see Table 12). Therefore, the null hypothesis, that there was equal variance, was accepted at the significance level of $p = .05$. Moreover, the homoscedasticity plot illustrated that the residuals of 1.0 (2D group), 2.0 (3D group), and 3.0 (control group) were relatively randomly distributed with 0 as the center (see Figure 4). Through these results, it was possible to identify that homoscedasticity, that is, the distribution of the population was the same. Lastly, it was possible to test independence through the Durbin-Watson stat: *Durbin Watson* = 2.60. The value of 2.60 was relatively close to 2, which indicated that the residual was independent. Since there were no problems in the diagnostics of the assumption for the residual (normality, homoscedasticity, and independence), it was appropriate to proceed to the data analysis step. The next analysis was to analyze the differences in the posttest scores of the LOC for the three groups.

Table 13. *Homogeneity Comparison for Post-test Using ANOVA*

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	32.400	2	16.200	12.789	.001
Within Groups	15.200	12	1.267		
Total	47.600	14			

The result of the ANOVA was $F = 12.789$ with *p*-value = .001(see Table 13). Therefore, the null hypothesis was rejected at the significant level of $p = .05$. Based on this result, the mean posttest score of at least one group was significantly different from that of the oher two groups.

Table 14. *Post Hoc-test: Student-Newman-Keuls[a] and Duncan Between 2D, 3D & Control Group*

	Class	N	Subset for alpha = 0.05		
			1	2	3
Student-Newman-Keuls[a]	3	5	4.60		
	1	5		6.40	
	2	5			8.20
	Sig.		1.000	1.000	1.000
Duncan[a]	3	5	4.60		
	1	5		6.40	
	2	5			8.20
	Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Table 15. *Post Hoc-test: Tukey HSD[a]*

Class	N	Subset for alpha = 0.1		
		1	2	3
3	5	4.60		
1	5		6.40	
2	5			8.20
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Since at least one group was found to be different from the other groups, post-hoc tests were conducted to identify which group(s) was different. Three post-hoc tests were used: Duncan, Student-Newman-Keuls[a] (SNK), and Tukey HSD. At a significance level of $p = .05$, the Duncan and SNK tests found that all three groups had different posttest means (see Table 14).

The Tukey HSD found that the means of three groups were different at the $p = .01$ significance level (see Table 15). Since the Tukey HSD is a conservative post-hoc test, the significance level of $p = .01$was used for further analysis

Table 16. *Multiple Comparisons With Dependent Variable Post-test*

	(I) class	(J) class	Mean Difference (I-J)	Std. Error	Sig.	90% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1	2	-1.800*	.712	.064	-3.41	-.19
		3	1.800*	.712	.064	.19	3.41
	2	1	1.800*	.712	.064	.19	3.41
		3	3.600*	.712	.001	1.99	5.21
	3	1	-1.800*	.712	.064	-3.41	-.19
		2	-3.600*	.712	.001	-5.21	-1.99
LSD	1	2	-1.800*	.712	.026	-3.07	-.53
		3	1.800*	.712	.026	.53	3.07
	2	1	1.800*	.712	.026	.53	3.07
		3	3.600*	.712	.000	2.33	4.87
	3	1	-1.800*	.712	.026	-3.07	-.53
		2	-3.600*	.712	.000	-4.87	-2.33

*. The mean difference is significant at the 0.1 level.

The information in Table 16 verified the differences between the groups. The results reported in this table paralleled the results in Tables 13 and 14. According to the results generated by the Tukey HSD statistic the following can be observed: (1) the 2D and 3D groups showed –1.8 difference and the *p*-value was .064, which rejected the null hypothesis. There were group differences between the 2D group and 3D group; (2) the mean difference between the 2D group

and 3D group was 1.8 with a *p*-value = .64, which rejects the null hypothesis; and (3) the mean difference between the 3D group and control group was 3.6 and the *p*-value is .001, which means that the null hypothesis was rejected.

To examine if the mean difference between the groups was negative or positive, a comparison of the size of the scores was undertaken. The mean of the 3D group was 1.8 larger than the mean of the 2D group, and the mean of the 2D group was 1.8 larger than the mean of the control group (see Table 16). Furthermore, the mean of the 3D group was 3.6 larger than the mean of the control group (3D group > 2D group > control group). According to the results of the LSD statistics, which is less conservative than the Tukey HSD, all results found significant differences between the groups at or below the significance level not only at $p = .01$.

The homogeneity tests were conducted before and after conducting art therapy treatment. Before conducting art therapy, the LOC scores of all groups were homogenous; after art therapy, the mean LOC of all groups was different. The outcome of these statistics showed that the pre-test score did not influence the post-test scores. However, the art therapy intervention affected the post-test scores. The pair *t*-test was used to identify significance differences between pre- and post-tests between groups

Analyzing Pre- and Post-tests

The change in LOC scores is exhibited in Table 17. The 2D group's LOC scores improved from 4.40 (SD = 1.14) to 6.40 (SD = .89) with a change in the score of 2.0; the mean LOC scores of the 3D group improved from 4.40 (SD =.14) to 8.20 (SD =1.30) with a change in score of 3.80; and the mean of the control or no art group showed slight shifts in the LOC scores from 4.20 (SD = .83) to 4.6 (SD = 1.14) with a change in score of 0.40.

Table 17. *Means and Standard Deviation of Pre- and Post-tests*

	N	Mean	Std. Deviation	Change Score
2D pretest	5	4.4000	1.14018	2.0000
2D posttest	5	6.4000	.89443	
3D pretest	5	4.4000	1.14018	3.8000
3D posttest	5	8.2000	1.30384	
Control pretest	5	4.2000	.83666	
Control posttest	5	4.6000	1.14018	0.4000
Valid N (listwise)	5			

Since the mean value of the LOC scores increased for the two art therapy groups, it was possible to conclude that the art therapy intervention influenced changes in the children's LOC. The differences in the mean LOC scores were then examined to identify if these changes were statistically significant.

To examine if significant differences existed among the change in scores for each group, paired *t*-tests were used. Before this analysis, an analysis was conducted to verify that no problems existed in the normality assumption of the residual.

Table 18. *Test of Normality for Paired t-test for Each Group*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
diff1	.136	5	.200*	.987	5	.967
diff2	.141	5	.200*	.979	5	.928
diff3	.367	5	.026	.684	5	.006

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

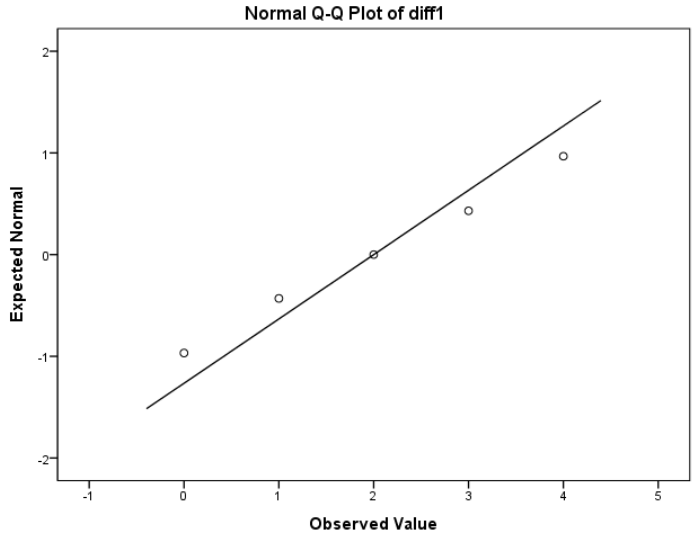


Figure 5. Q-Q plot of change in scores for the 2D group. The data was assumed to be normal distribution because the points were close to the line and there were no outliers.

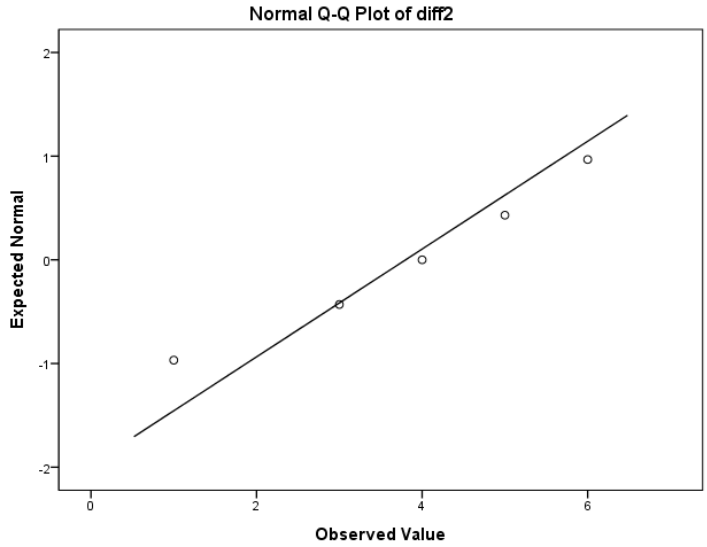


Figure 6. Q-Q plot for the change in score of the 3D group. The data was assumed to be normal distribution because the points were close to the line and there were no outliers.

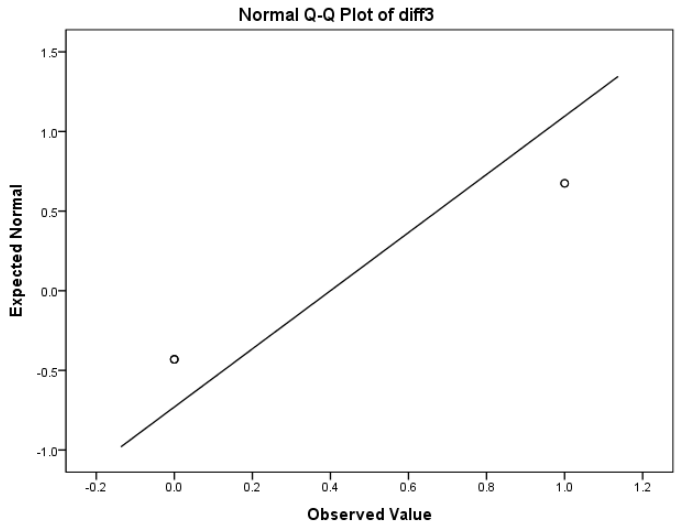


Figure 7. Q-Q plot of the change in scores for the control group. The residual did not fit on the Q-Q line.

If problems of normality exist, the nonparametric paired *t*-test (Wilcoxon signed rank test) should be used. The result of the normality test is presented in Table 18.

To test the normality hypothesis, the Shaprio-wilk statistic was used as reported in Table 18. The Shaprio statistic of the 2D group was .987 with a *p*-value = .967. Therefore, the null hypothesis that the normal distribution cannot be rejected was confirmed. Furthermore, the Shaprio statistic of the 3D group was .979 with a *p*-value = .928, which indicated that the null hypothesis cannot be rejected. Lastly, the Shaprio statistic of the no art group was .684 with a *p*-value = .006. Therefore, the null hypothesis that the scores followed normal distribution was rejected and the assumption was not satisfied. Therefore, the nonparametric test, the Wilcoxon signed rank test, was used to test the differences between the groups.

The Q-Q plots in Figure 5, 6, and 7 showed that the residual of the 2D and 3D groups almost fit the Q-Q line, but the residual of the control group did not. Since the data of the control group was only two (0 and 1), it did not follow normal distribution. Based on these two results,

the examination of the normality assumption was conducted to verify if it was statistically meaningful.

Table 19. *Paired samples test for the 2D Group*

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre-post 2D group	-2.0000	1.58114	.70711	-3.96324	-.03676	-2.828	4	.047

Table 20. *Paired Samples Test for the 3D Group*

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre-post 3D group	-3.8000	1.92354	.86023	-6.18839	-1.41161	-4.417	4	.012

First, Table 19 illustrates the *t*-test the pre-test/post-test differences for the 2D group (t = -2.828 with a p-value = .047). Therefore, the null hypothesis was rejected at the significance level p = .05, and the alternative hypothesis, mean differences between the pre-test and post-test for the 2D groups, was accepted. That is, when the children use only two-dimensional art media, the LOC was changed. Second, Table 20 shows the *t* –test for the 3D group (t = -4.417 with a p-value = .012. Therefore, the null hypothesis, there will be no mean difference between the pre-

test and the post-test for the 3D group was rejected; the alternative hypothesis, there is a mean difference between the pre-test and post-test for the 3D group, was accepted. That is, when children used only clay-based three-dimensional art media, their LOC changed significantly.

Table 21. *Wilcoxon Singed Rank Test for the Control Group*[a]

	post – pre control group
Z	-1.414 [a]
Asymp. Sig. (2-tailed)	.157
Exact Sig. (2-tailed)	.500
Exact Sig. (1-tailed)	.250
Point Probability	.250

a. Based on negative ranks.

Table 21 showed that there were no changes in LOC scores in the control group. The *Z* stat of the Wilcoxon signed rank test for the control group was -1.414 with a *p*-value = .5. When the *Z* stat is less than -1.96 or greater than 1.96, the null hypothesis is rejected. Since -1.414 is between -1.96 and 1.96, the null hypothesis, there will be no mean differences between samples, was not rejected and no significant changes in LOC for the control groups was found.

Lastly, it was necessary to examine the homogeneity of the change in score (pre-and post-test) of the groups. If there were meaningful differences in the change in scores after the intervention, particularly with the control group, it might indicate the effect of art therapy in the LOC score. The differences between the pre-and post LOC score were analyzed by one-way ANOVA.

The results of the Shapiro-Wilk test, which examined the normality, was .975 with a *p*-

value = .921 (see Table 22). Therefore, the null hypothesis was not rejected at the significance level of .05.

Table 22. *Tests of Normality for the Change Scores*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Change score	.118	15	.200	.975	15	.921

a. Lilliefors Significance Correction

Table 23. *Test of Homogeneity of Variances for the Change Score*

change_score

Levene Statistic	df1	df2	Sig.
2.057	2	12	.171

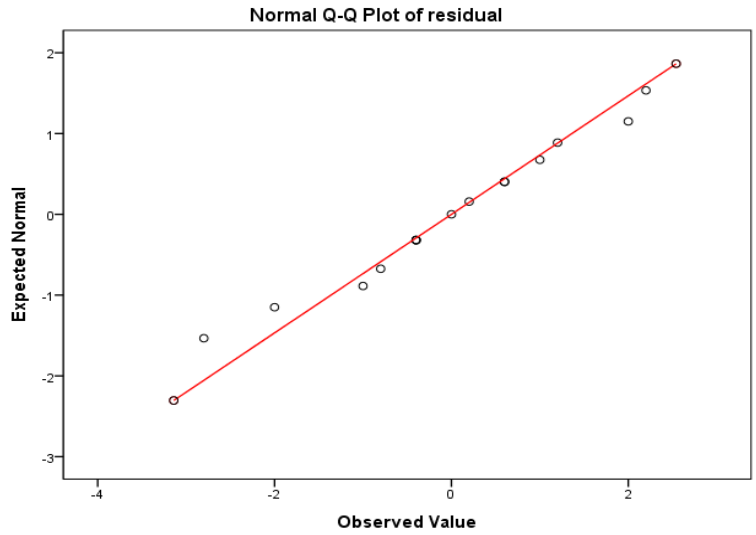


Figure 8. The Q-Q plot shows the residual of the change in scores for all groups. The data was assumed to be normal distribution because the points were close to the line and there were no outliers.

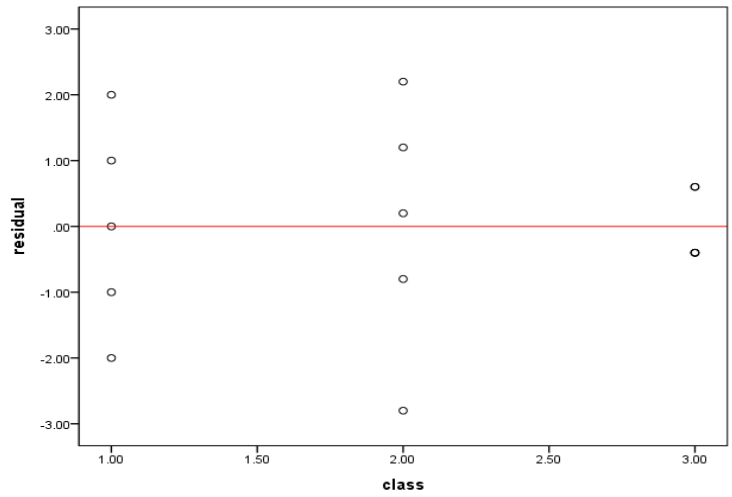


Figure9. Homoscedasticity; residual plot of the change in score. It was found that there was no difference in the standard variation among the three groups because the distribution of points was unbiased, and displayed homoscedasticity.

Furthermore, since the Q-Q plot showed that the data almost fit the Q-Q line (see Figure 8), it can be concluded that the residual followed the normal distribution. Second, the Levene statistic, which examined the equal variance, was 2.057 with a *p*-value = .171 (see Table 23). Therefore, the null hypothesis, there will be equal variance, was accepted at the significance level $p = .05$. Moreover, the homoscedasticity plot illustrated that the residuals of 1.0 (2D group), 2.0 (3D group), and 3.0 (control group) were relatively randomly distributed with 0 as the center (see Figure 9). Through these results, it was possible to identify that homoscedasticity, that is, the distribution of the population was the same. Lastly, it was possible to test independence through the Durbin-Watson stat: Durbin Watson = 2.73, which was close to the value of 2.60. This indicated that the residual was independent, which means that there was no relationship between residuals.

Since the diagnostics found no problems with the diagnostics concerning the assumptions for the residual (normality, homoscedasticity, and independence), it was appropriate to conduct

further data analysis using a one-way ANOVA. The results of the analysis of the differences among the pre-and post-test mean change score differences are as follows:

Table 24. *Homogeneity Comparison for the Change Scores*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32.400	2	16.200	12.789	.001
Within Groups	15.200	12	1.267		
Total	47.600	14			

The result of the ANOVA was $F = 6.677$ with a p-value = .011 (see Table 24). Therefore, the null hypothesis was rejected at the significance level of $p = .001$ and the alternative hypothesis was accepted. Based on this result, at least one group's mean score change was significantly different from the other two groups' change.

Since at least one group was found to be different from the other groups, a post-hoc test was conducted to identify which group(s) were different. Two post-hoc tests were used: Duncan and Student-Newman-Keuls[a] (SNK).

At a significance level of $p = .01$, the Duncan and SNK tests categorized these three groups as two groups (A & B). The 2D group and no art group were classified as B, which means there were no significant differences between these two groups (see Table 25). Only the 3D group was classified as A, which indicated that there was a significant difference between the 3D group and the 2D and control groups.

Table 25. *Post-hoc Test for the Change Scores*

	class	N	Subset for alpha = 0.1	
			1	2
Student-Newman-Keuls[a]	3.00	5	.4000	
	1.00	5	2.0000	
	2.00	5		3.8000
	Sig.		.111	1.000
Duncan[a]	3.00	5	.4000	
	1.00	5	2.0000	
	2.00	5		3.8000
	Sig.		.111	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Even though Table 16 illustrated that significant differences were found among the three groups at post-test, the mean change scores (post-test scores minus pre-test scores) showed that only the 3D group exhibited significant differences. Based on this result, it is difficult to conclude that the 2D group had a significant benefit from the LOC change from art therapy. The 3D group, however, showed a significant difference from the 2D group and the control group, and the mean of the change in score was higher than that of the 2D and control groups.

Conclusion

Through the statistical results above, changes in the 2D group and 3D group were observed. Between the 2D group and 3D group, the significance level of the LOC change in scores for the 3D group (p = .012) was stronger than that of the 2D group change in score (p = .047). This m in the LOC of the members of the 3D group improved more than that of the members of the 2D group. The change in the two groups is shown in Figure 10.

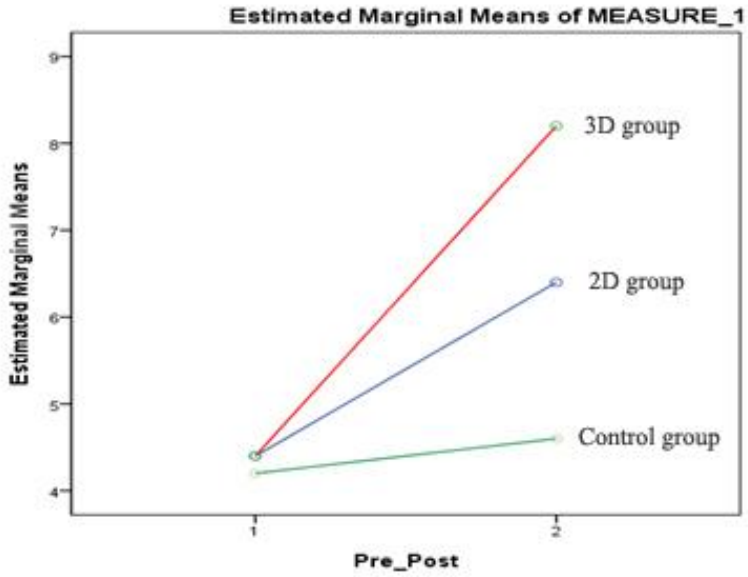


Figure 10. A diagram of the pre-test mean and the post-test mean for each group. As shown in this diagram, the LOC scores of the 2D and 3D group increased compared to those of the control group; in particular, the change in the 3D group was the most noticeable.

Furthermore, based on the data in Table 19 and Table 20, the 2D group had a change in LOC of about 2.0 points, and the 3D group showed a 3.8 score change, which indicated that the use of clay-based 3D art media was more influential on the change in scores in LOC than the use of 2D art media. Moreover, as investigated in Table 16, the mean of the 3D group was the highest mean among the three groups. Figure 8 is the linear graph of the three groups, which illustrates the change in LOC. Finally, Table 25 demonstrates that only the 3D group showed a significant change in the post-hoc test for change in scores (difference between pre-and post-test) according to the classification of the Student-Newman-Keuls and Duncan tests.

Qualitative Analyses

In this section, qualitative data that could support the results of the quantitative data will be discussed: therapist observations of children during art therapy sessions, teacher interviews before and after the study, and participant artwork will be examined here.

Observations

The researcher/therapist observed the children during the art therapy sessions. Sessions were recorded by audiotape and analyzed as supportive evidence for therapeutic change along with the quantitative data. Because the sample size was small and the standardized measurement was used only at pre-test and post-test, assessing subtle and nuanced change was only possible through qualitative means. The participants' conversations, behaviors, attitudes towards given tasks, and their artwork were observed. For the full transcript of the observations, see Appendix I.

Observations of the 2D group. Student reactions to specific art materials were observed by the researcher. For example, Sera and Kathy seemed uncomfortable with the drawing materials because they wanted to draw something realistic. They refused to use art materials with resistant qualities such as oil pastels, color pencils, and pencils. Their discomfort was observed because they were unfamiliar with drawing and painting and because their poor motor skills prevented them from creating what they wished. Kathy and Liam did not like the texture of the finger paints because this medium was unfamiliar to them. Participants received precut paper or magazine cutouts with ease. It was observed that some children were frustrated with tasks with high complexity. For example, in session eight, making latticed pattern with color paper, Sera, Kathy, and Liam had difficulty with the steps of the process; yet Becky completed the task easily (see Figure 11 and Figure 12). Sera completed the task with the therapist's help, but Kathy eventually was not able to complete the task successfully.

Figure 11. Kathy's work in session eight

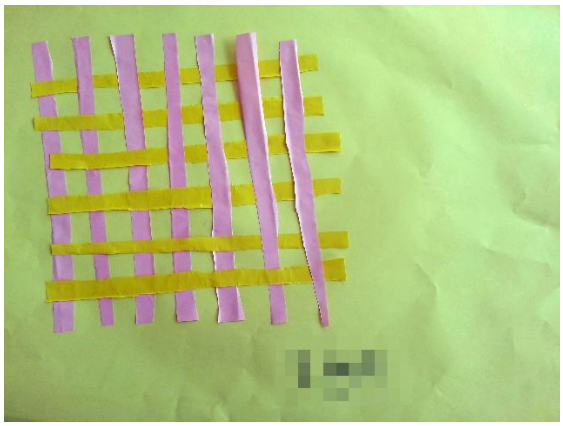


Figure 12. P 5's work in session eight

At times participants lost concentration when given a task with several steps and needed additional support. For example, in session four, when one step of an art task was completed, Jack thought it was the end of the session. In session five, Liam needed additional explanations and individual intervention to complete the work.

The children imitated what other children were doing or what the therapist demonstrated. Most children stated that they did not know how to use the materials and required frequent help from the therapist. Often they were hesitant to begin an art task and started only after they witnessed another child begin using the art materials. For example, in session six the group members only began to make houses after they watched Becky create a house out of basic cutout shapes (see Figure 13).

By observing the children's behavior and listening to their conversations, changes in each child's attitudes were noted. Sera reduced negative self-statements and increased positive ones.

Figure 13. Works of Kathy, Liam, Becky, & Jack (clockwise)

She stated, “See, I can’t,” when she failed to draw a circle in session three. She interrupted classes by asking unrelated questions or suddenly told irrelevant stories with classmates. Even though she asked for frequent help from the therapist throughout the program, the number of interruptions decreased overall. At the beginning of the art therapy treatment program she was unwilling to try again when she thought that her work was not going well. During later sessions, she demonstrated attempts at trial and error. In session eight she had trouble understanding how to make a latticed pattern with paper, but she made an effort to complete it (see Figure 14).

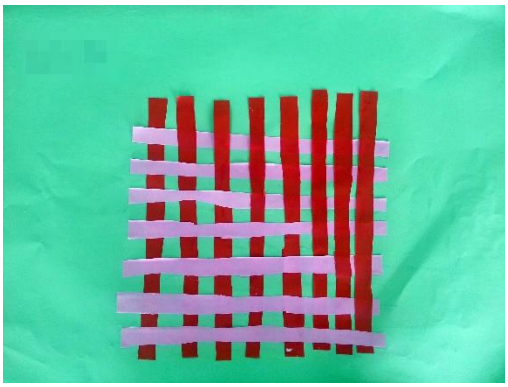


Figure 14. Sera's work at session 7. Sera completed the latticed pattern through trial and error

Kathy showed reduced frustration about her drawing skills throughout the program. At first, Kathy stated, "I can't draw a circle. I am a Down's Syndrome child." She knew her diagnosis, which discouraged her from taking on a challenge. She repeatedly used her diagnosis as an excuse for her lack of skills and her low self-confidence. She interrupted the class not only by suddenly yelling out or refusing participation, but also by spoiling others' work. These behaviors were gradually reduced. While she was tearful when she had to draw something with oil pastels during the first session, she was able to complete a picture during the last session. Although she finished her art piece she stated, "My drawing is awful. It might be okay if all pieces are combined."

There were no observable changes in Liam's behavior. As the program progressed, Jack stayed in his seat longer, but it was difficult to observe remarkable changes in his attitude because he spoke only a few words during the sessions.

Becky gradually increased positivity in her ability to attempt a task. She stated, "I could not did [do] it… I knew it," when she failed to finish her work on time in session three (see Figure 15). Since she demonstrated excellent motor skills in the group, she found that her

artwork was better than that of the other group members. She gained confidence when other children copied her work in session five. She began to encourage other children not to give up on completing their artworks. The change in positive attitude toward art making was evident.

Figure 15. Becky's work at session 2. Becky could not finish her work on time because she divided too many sections that she can handle in session three. She needed the therapist's help.

Observation of the 3D Group. Since children in the 3D group used only clay-based 3D art media, they experienced fewer challenges adjusting to various art media than those in the 2D group. Observing the children's reaction to the clay was the most important goal of the qualitative data collected for the 3D group. At first, Brandon and Brian refused to touch the clay because it was wet and cold. However, they began to enjoy the clay in the second session. In session one Emma stated, "This is so soft" and "it keeps changing its shape." Chris exclaimed, "It's fun. It's soft," during session two. During session seven, Jenny said, "I like clay. I can make anything with clay. I feel I don't need to feel pressure to create perfect work because I can make it again when I make a mistake." These quotes illustrate how children felt about the clay's fluid quality. Additional media (such as fabric, wooden sticks, grains, or foil) did not have the same impact on the children as did the clay.

Since the use of clay was introduced one step at a time, there were few psychological barriers to completing clay projects (see Figure 16). Only some children experienced difficulty

with the step-by step approach and needed additional care and instruction. For example, when children in the 3D group learned coiling and pinching skills, Chris yelled out and got angry because he had trouble using the coils to make a cup. Because of this poor emotional regulation, he needed additional help for most of the art therapy sessions. However, in session eight, he completed his work by himself with only minimal help from the therapist.

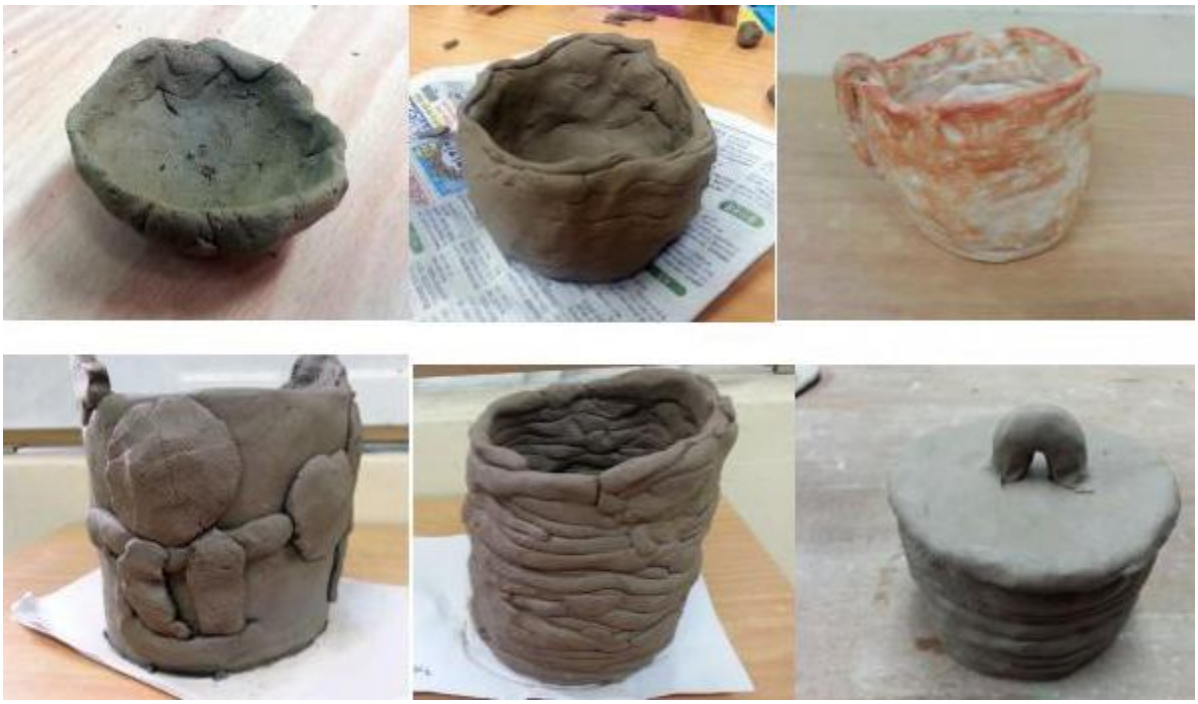


Figure 16. Change of Brandon's works. Starting from top left going in a clockwise direction.

Completing clay work requires complex thinking when considering the whole process from a lump of clay to a completed piece of ceramics. The most used clay process was making coils and using them to build a structure.

At session three, Brandon asked for help from the therapist and proceeded to use trial and error; he was able to complete his piece after he watched the therapist demonstrate. At session six, as described, no child had trouble completing his/her work.

Through repeating the use of coils to create vessels such as cups, the children created increasingly sturdier and larger cups, and failure was reduced. Seeing their cups after they had been fired in the kiln increased their sense of achievement. The children were excited to see their finished goods, and repeatedly asked if they could bring the products home. Children noticed the progress they made with clay techniques and comparing their later pieces with the first ones they made. This motivated them to make finer artwork.

During the second session when children first learned to make cups, the average height was 6.5cm; cups created on the last day were 11.4 cm, which was a 4.9 cm average increase in height (see Figure 17). Furthermore, the quality of clay coils became remarkably more *even* overall. At first, because of trial and error, low concentration, and low abilities in using the clay, it was difficult for the children to complete their work on time. The time needed to complete a project decreased throughout the project; also their work became more complex throughout the sessions.

Figure 17. Brandon's first work (left) and the last work (right). The height of the first work was 5.5cm, and that of the last one was 13.3cm

By observing children's behavior and listening to their conversations, changes in each child's attitude was uncovered. Brandon gradually showed confidence in making cups. At first, Brandon

refused to use clay and hesitated to make a cup because he did not have the confidence to complete it. His intellectual level was not low, but he was afraid to learn a new process. He asked for help from the therapist during art therapy sessions even though he was able to complete clay pieces by himself. The repeated making and using of coils to create vessels lowered his fear of manipulating clay, and gave him the confidence to believe that he could manage the whole process from start to finish. He admitted, "I could not make a cup in the past, but now I can even make a house. Now making a cup is too easy."

Chris did not verbalize his attitudes or concerns because he could only speak in short sentences and his vocabulary was limited. When he first worked with the clay he displayed frustration by yelling, "Difficult! Not working! Help!" During each session he found that making a cup was difficult and he demanded the help of the therapist. Since his level of concentration was low and he expressed aggression towards other members when he felt unhappy, it was not easy for him to focus on the art making process. However, he gradually tried to make cups by himself; sometimes he even shouted to the therapist not to touch his cup. His expression continued to be aggressive, but his attitude toward clay work changed.

Jenny became active when she manipulated clay. Since her intellectual abilities were not low, she could verbally express her ideas clearly. She would comment that she was afraid of failure. She said, "It looks difficult. I think I can't follow your directions. I hesitated before I decided to participate in this class because I will be mad if I lag behind this class." Even though her ability to manipulate the clay was more refined compared to the others in her group, she believed she possessed only minimal skill. Furthermore, she was not able to accept positive reinforcement from the therapist. She tried to find other reasons for her success. For example, when the therapist said, "Your cup looks better than before," she answered, "Because you helped

me" or "Because the previous one [clay] was harder." These types of comments are typical of children with external LOC. Yet a noticeable change was observed when she admitted to being good at detailed description in later sessions. The therapist pointed out this strength and she accepted the praise. In session eight Jenny declared, "I am a great potter for my age" (see Figure 18).

Figure 18. Jenny's work at session 8. Jenny praised herself when she completed this cup in session eight.

Emma gained confidence in making clay cups through the sessions. She showed low self-confidence when she first faced clay. But at session three, Emma stated, "Jenny is doing very well. Mine will be compared with hers." She slurred the end of her sentences when she talked about her work and often asked for help from the therapist. With repeated practice, her technique of making coils was so improved that she could recognize her development (see Figure 19).

Brian's fear of learning to make a cup dissipated throughout the sessions. Brian stated that he did not know how to manipulate clay and did not show passion for learning until session four.

Figure 19. Emma's last work. Coils are even and stable.

In the early stage of sessions, he barely smiled while working with clay, and frowned because he could not finish his work by himself. However, he became excited about clay work when he saw his clay pieces after they had been fired in the kiln (see Figure 20).

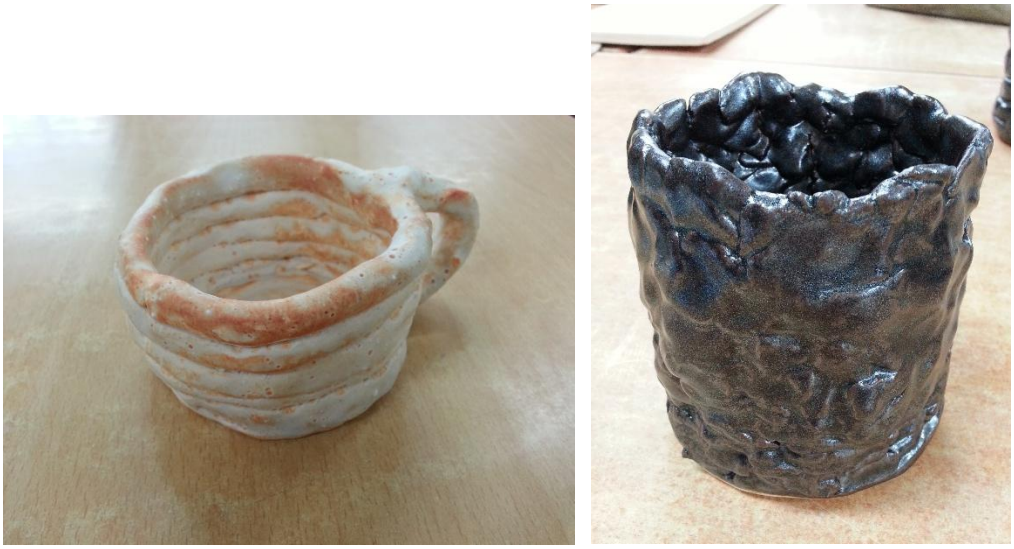


Figure 20. Brian's ceramics cups.

He became excited about the ceramics cups and exhibited increased motivation for learning how to use the clay. After several sessions he completed clay cups with less help and more attention to detail. When he was absorbed in clay work, it led him to feel a sense of accomplishment. In session eight he stated, "Making a cup is easy. I can make hundreds of cups now."

Teacher Interviews

Teacher interviews were conducted twice: before and after art therapy treatment. For a full transcription of the interviews, see Appendix J. During the first interview, the teacher explained participants' overall behavioral characteristics and at the second interview, she focused on the changes that she observed over the 10 weeks of the study. The researcher asked the teacher to discuss each participant's academic attitude, peer relationships, and behavioral problems without fixed formation.

Teacher Interview at Pre-test. According to the teacher, Sera was the most demanding child in her class because she was talkative and possessed very low concentration in the classroom. Her constant questions tired the teacher and interrupted other children's learning. Sera was a very bright and cheerful child, but she did not recognize her faults when they were pointed out by teachers. Kathy was the youngest (seven years old) among the participants of the research and displayed aggressive behaviors during classes: sometimes she would throw things and yell out in class, and sometimes she urinated in the classroom. She cried easily when she was warned by teachers about her behavior, and did not try to solve given tasks even when they were simple, such as counting numbers.

Liam had difficulty communicating due to his autistic disorder. He had a short attention span in class, and was passive in his everyday life, waiting for the teacher or other adults to tell him what to do. The teacher reported that Jack's mother tried to ignore the existence of her son

and this was at the root of his emotional difficulties. He had a passive attitude towards his everyday life. He spoke softly and because of this, the teacher had to often ask him to repeat himself when she tried to speak with him. The teacher discussed Becky's serious learning disorder. She was not able to focus on school tasks and had difficulty sitting still. It was difficult for her to hold a book and to read academic materials. Because of her diminished ability to learn, she felt humiliation about her academic performance and was often aggressive towards her classmates. She was often in trouble, but did not acknowledge her faults.

The teacher explained that Brandon was the smartest student in the class and he also had high self-esteem. However he did not try to solve problems or complete tasks when he thought he was not good at them. Possessing an autism spectrum disorder, Chris had trouble communicating with others. Jenny had a visual impairment, which led to her low self-esteem. It was difficult for her to accept praise from others. Emma was easily distracted during classes and he evaded questions and offered only vague answers. Brian had difficulty solving problems and often required help from teachers. He also did not like to talk with teachers.

Teacher Interview at Post-test. According to the teacher after the art therapy program, Sera sometimes raised her hand and answered questions; her comment was, "I am sorry" when she was scolded by teachers. Kathy reduced her aggressive behaviors and actively accepted her given tasks. Liam reduced the frequency at which he rejected given tasks, but did not demonstrate other evident changes. The teacher did not observe any noticeable changes in Jack except that she tried to speak more loudly than before. Becky's concentration increased in art, and Korean language classes, but not in other classes. The teacher said she hoped Becky's improvement in concentration would generalize to other classes.

Brandon's attitude towards solving his tasks when he faced barriers improved. Chris did

not demonstrate obvious changes, but he attempted to solve problems in the Korean language class. Jenny mentioned to the teacher that she received praise during art therapy sessions and began to acknowledge accomplishments when she received praise from other teachers. Like Jenny, Emma also tried to acknowledge her efforts when she was told she did a good job. She showed her ceramics cups that she made to teachers and anticipated positive feedback. Brian exhibited eagerness to participate in the art therapy sessions. Brian tried to talk with teachers about the ceramics that he created. This was an important change in his behavior because he often avoided interacting with teachers previously because he was afraid of being scolded by them.

At post-test, the teacher stated:

> The changes I observed in the children over 10 weeks might not have been big ones. They showed changes one-to-three times, or just a small increase in frequency. However, I think it is a big step for them. I realized that some additional curriculum in art is necessary and clay work seems to be essential for them. I had not used clay during the art class because I do not know how to handle it and was afraid of the cleaning process. However through this research I found that more children who participated in clay-focused art therapy were waiting for the teacher to come work with them than other children. They wanted to continue the clay work even though the research was over. I also found that the 3D group showed longer concentration during classes than the first group.

Furthermore, the teacher explained that children in the 3D group showed more prolonged concentration in other classes than the children in the 2D group. Also children in the 3D group showed interest in continuing to work with clay even after the study was over.

Based on the teacher's interview, she found that Becky in the 2D group and Brandon, Emma, and Brian in the 3D group demonstrated that the art therapy experience had an impact on their lives. This observation provided evidence that children who used clay-based 3D art media displayed greater success in other academic fields due to the art therapy program.

Behavioral Changes as Noted by the Teacher. Based on the teacher's interviews, changes were found in children's behaviors in their academic classes and in their daily life. The teacher stated several positive behavioral changes in each child as follows: (1) Sera increased recognition of her faults when a teacher corrected her behavior ; (2) Kathy increased her ability to accept tasks; (3) Liam reduced the frequency of rejecting tasks; (4) Jack's voice became louder; (5) Becky's ability to concentrate on regular art class projects increased; (6) Brandon tried to solve problems even when they were difficult for him; (7) Chris persisted in solving problems even though they were difficult for him; (8) Jenny started to take credit for her work when she received praise; (9) Emma took credit for her work and accepted praise from teachers; and (10) Brian solved problems in the classroom as he did in art therapy sessions and wanted to show his teachers the work he created in art therapy. These teacher observations underscored that both two-dimensional art materials and clay-based three-dimensional art therapy positively impacted the attitudes, academic achievement, and problem-solving behaviors of the participants.

Conclusion

The results of this research supported the rejection of the null hypothesis. Quantitative and qualitative data supported the hypothesis that special needs children who used 3D clay-based art materials in an art therapy group would gain a more internal LOC as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) than children in the control

group. The null hypothesis cannot be totally rejected because both the 2D and 3D groups improved their LOC scores over the control group. However, the 3D group showed a greater improvement than both the 2D and control groups. Analysis of the SPIES scores indicated that both the 2D group and 3D group showed positive changes in LOC, but only the 3D group showed a significant change when analyzing the post-hoc test using an ANOVA ($p = .01$) and the Duncan and SNK tests.

Observations and teacher interviews also indicated children in both the 2D and 3D groups showed positive changes in classroom behavior and in daily life as a result of the art therapy sessions. Children in the 3D group showed prolonged concentration in regular classes, exhibited passion to participate in the art therapy program, solved problems when faced with difficulties, and acknowledged both faults and merits more so than the students in the 2D and control groups. Although children in both the 2D and the 3D groups improved their LOC scores, the results indicated that children in the 3D group displayed more positive change in LOC than those in the 2D group.

CHAPTER FIVE

DISCUSSION

This study examined the use of clay-based, three dimensional art materials as a therapeutic intervention for elementary school children with special needs. The hypothesis was that students in a 3D art therapy program would demonstrate more internal locus of control (LOC) than students who were in the art therapy group that used only two dimensional art media.

In this chapter, the results will be discussed and the method will be examined in order to assess flaws that may have affected the results. The results of the study will be discussed in the context of the current literature including an examination of the literature on the therapeutic qualities of clay. The limitations of the study will be addressed. Finally, implications and suggestions for further research will be presented as well as recommendations for art therapists working with school-aged disabled children.

Discussion of the Results

This research project was initiated in order to explore art media differences that influence changes in LOC scores for children with special needs. The *Stanford Preschool Internal-External Scale* was used to identify changes in LOC; and observations, art works, and interviews with the teacher were used to explore the hypotheses and research questions further through qualitative data.

The hypothesis was special needs children who used 3D clay-based art materials in an art therapy group would gain a more internal LOC as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) than children in the group using only two-dimensional art materials. The research question was: What is the differential impact of 2D and

clay-based 3D art media on the locus of control of South Korean special needs children in art therapy as measured by SPIES?

This research study consisted of eight male and seven female special needs children in normal elementary school in South Korea ranging from the age of seven to12. The school was randomly selected from the list of normal elementary schools that had at least two special classes for special needs children in Seoul, South Korea. The sample students were selected randomly for the study and the students were randomly assigned to one of three groups: a 2D art therapy group, a 3D art therapy group, and a control group. The intervention was 10 weeks of group art therapy for each of the two art therapy groups, and each session lasted for one hour. The control group did not receive any art therapy or any other intervention in addition to the regular school curriculum.

Quantitative Outcome of LOC Test

The *Stanford Preschool Internal-External Scale* (SPIES) was used as the pre- and post-test and to evaluate the changes in the internal LOC for each group. This questionnaire consisted of 14 questions and each question had two answers that indicate either an internal or an external LOC tendency. Since only the answers about internal tendency were calculated, the test was scored from 0 to 14, with higher scores indicating a higher level of internal LOC.

The results indicated that there were no group differences in LOC scores at pre-test between in any of the three groups; the 2D and 3D groups displayed positive changes in internal locus of control at post-test. Since the 2D group (.987, $p < .05$) and 3D group (.979, $p < .05$) followed normal distribution on the Shapiro-Wilk test (.684, $p < .05$), a paired *t*-test was used to calculate differences between the 2D group and 3D groups, and for the control group a Wilcoxon signed rank test was used to analyze the change between pre- and post- test. The result of the paired *t*-test indicated that the *p*-value of the 3D group (.012) was larger than that of the 2D group (.047).

Furthermore, the post-hoc tests (Turkey HSD and LSD) found that the mean score of the 3D group was 1.8 larger than the mean score of the 2D group at post-test; the mean score of the 2D group was 1.8 larger than the mean score of the control group. These results supported the hypothesis that the 3D group had greater change towards internal LOC than the 2D group. Furthermore, this result indicated that the 2D group had positive changes towards internal LOC as well, but the 3D group had a greater change than the 2D group.

Finally, at a significance level of $p = .01$, the Duncan and SNK tests categorized these three groups into two groups (A & B). First, the 2D group and the control group were classified together as B since it was found that there were no significant differences between these two groups at post-test (see Table 25). The 3D group was classified as A, which indicated that there were significant differences between the 3D group and the two other groups (the 2D group and the control group).

This result may have come from the positive influence of repeated cup-making using clay on children in the 3D group, which gradually increased the participants' skills to develop mastery using clay. Starting from the basic skills such as pinching and coiling, students in the 3D group might have felt reduced pressure to make certain concrete figures. Furthermore, children in the 3D group might have felt less uncomfortable when they failed to make what they wanted than those in the 2D group because it was possible to destroy and recreate their work using clay. Moreover, children in the 3D group may have realized a sense of accomplishment when they completed cups on their own and without much assistance from the therapist.

Qualitative Outcome of Observation, Art Pieces, and Interviews

The qualitative data supported the outcome of the quantitative data. The teacher interviews indicated that almost all students in the 2D and 3D groups had changes in their behavior and

attitude towards academic matters. Often they were able to concentrate on tasks longer in class or tried to solve problems by themselves. The teacher interviews also indicated that the experience of art therapy influenced the children's daily lives. For example, some of the children placed less blame on other classmates when they made a mistake; others recognized their faults, and some children took credit for their achievements when given praise from teachers. Although these results might be because of the children's natural development as the teacher mentioned in her interview, she did not find the same level of behavior change in the students assigned to the control group.

Furthermore, the observations by the therapist indicated that during the art therapy sessions, the children in the 2D group sometimes felt uncomfortable when they used resistant drawing materials that required them to draw something figuratively. Some children in the 3D group also showed discomfort towards the art materials and some had difficulty touching the clay at first. However, after session three, no one showed resistance towards touching the clay. Based on conversations with the children, they voiced feeling comfortable and relaxed because of the soft and malleable qualities of the clay.

They were asked to create clay coils and vessels, which did not require minimal artistic skills. Moreover, children in the 3D group repeated similar working processes and additional steps were added gradually, which encouraged them to improve techniques slowly over time. Participants in the 3D group were shown their finished work early in the sessions and some children stated that working with clay made them excited because they could actually use the ceramics cup that they made in their daily life. This provided an impetus for them to further concentrate on art processes and stay with the art tasks longer. Even though children in both the 2D and 3D groups improved concentration and confidence through participation in art therapy,

the repeated success children in the 3D group experienced might have been one of the factors that led to the increase in internal LOC.

Examination of the Therapeutic Qualities of Clay

Case and Dalley (1992) stated that the most important qualities of clay are its tactile and tangible qualities, which reduce the defense mechanisms of clients and helps them to reach a more fundamental level of consciousness. As Frank (1957) mentioned, sensory elements are the first to develop in human beings, and touch is an early mode of communication learned by infants. Kim (1999) stated that these qualities of clay develop the sense of assimilation with nature that make it easy to evoke one's feelings. Furthermore, special needs children might develop improved eye-hand coordination and motor skills through spontaneous contact with clay and by tapping, tearing, combining, and pinching clay (Choi, 2001).

As Bloom (1980) stated, the experience of success or failure may determine the desire for the next learning process. Accumulated failure experiences can generate learned helplessness, which encourage children to depend on others, and expect failure rather than success in their future learning. Clay has an advantage for children, whose hand muscles are not well developed, because it is easy to manipulate and does not require the creation of specific shapes; other art materials such as oil pastels or pencils suggest the creation of shapes and figures (Kim, 1999). Moreover, successful control of art media may lead to a feeling of satisfaction and success for special needs children who do not often experience success.

Lusebrink (1978) developed Media Dimensions Variables (MDV) that enabled art therapists to explore the effects of different media properties in art therapy. She categorized the continuum as fluid to resistive, structured to unstructured, and simple to complex. As Kagin (1969) stated "Materials are soft or hard, fluid or solidified, smooth or rough in text, large or

small, etc. Obviously, these properties are not dichotomized, but range in a continuum" (p. 10). Most art materials exist along a continuum of fluid to resistive. Clay can be either be fluid (if the clay is wet and sloppy) or resistive (if the clay is hard); however, this study used only soft clay, which is close to fluid. As Kagin mentioned, fluid materials are soft, aqueous, quite malleable, and easy to manipulate, while resistive media are hard, brittle, slightly pliable to non-malleable, and difficult to manipulate. Since special needs children have a fear of challenge due to their accumulated failure experiences and distrust of their ability, soft clay has a benefit for them because of its easy manipulation and malleable quality, which allows them to recreate when they face failure while making artwork.

2D media required children to follow certain processes to complete the program. For example, children should use tools such as scissors, water color, brush, and origami paper. It might be similar when children learn the basic skills of clay work such as pinching and coiling. However, children could use what they learned at the next sessions, which did not require additional instruction. This might help children reduce the fear of learning that they usually have due to accumulated failure experiences.

Moreover, clay-based 3D media is more unstructured than 2D media. Making cups required only basic skills in clay work that were repeated throughout the whole process of the sessions. For this reason, children did not feel much pressure to follow new instruction. However, some programs using 2D media that imposed pressure to learn something new led to unsatisfied results (see Figure 11 and 12).

Examination of the Method

This study used a qualitative and quantitative mixed method. For quantitative data, the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) was used for the pre-

and post-test. The scale was selected for this study because it has the shortest and repeated questions among LOC scales for children. However, since the scale was developed for typical preschoolers, which does not consider children with disabilities, the scale might be difficult for children in this study, as discussed in the section of limitations of the study.

For qualitative data, observations, teacher interviews, and visual images were used. The researcher observed children's conversations and attitudes during art therapy sessions and jotted them down. Since the contents of the interviews depended on the researcher's memories, there might be a lapse of memory and subjective bias. Video recording was not used because the school did not permit it. Teacher interviews were conducted pre- and post-art therapy. The researcher recorded the interviews and studied them carefully after they were transcribed. Teacher interviews carry biases as well. However the interviews provided insights that uncovered the day-to-day behaviors of the children. Children's artworks were photographed right after the art therapy session ended. Ceramics cups were photographed before the researcher returned the cups to the children. This documentation helped the researcher to analyze the children's artwork.

Limitations of the Study

Although some limitations of this study were identified in Chapter One, additional limitations were identified as the study concluded. The most obvious limitation of this research is the sample size. Due to the small sample size of 15 special needs children, the results from the sample cannot be generalized to the population. This limited participant pool impacted the external validity of the study. Cook and Campbell (1979) stated that when the sample size is small, randomization might result in the Simpson Paradox, which is a paradox in which an individual study might trend in one direction but when these groups are combined, the opposite trend appears for the aggregate data.

The sample consisted of children ages from 7 to 12; therefore, the study cannot be generalized to all children. Caution is important when generalizing the results for very young children or teens. Generalization to similar populations must be carefully considered. Since the study took place in Korea and the children were Korean educated in the Korean educational culture, the results may only be useful in this particular country. Korea has a collectivist culture, which places emphasis on groups, rather than each individual. Therefore, Korean students have been educated that crediting certain results to themselves is considered to be poor manners, and attributing merits to others is courteous, especially if they are young children. Since Korean culture criticizes a person who talks about one's strength, children are also reluctant to acknowledge their positive attributes. These cultural features might limit the generalization of the results to other cultures (Please see the section on cultural differences in LOC discussed in Chapter Two.)

Children who participated in this study had intellectual limitations and thus the use of the SPIES might be questioned. Furthermore the varying intellectual levels of the students was wide. For example, while Sera and Becky could explain their feelings or what they did on a particular day, Liam and Jack could not express basic thoughts. Some children could not answer simple questions and others were not always aware of their environment. When the researcher asked P 7, why do you have a hole in your pants, because you tore them or because they wore out? He answered that he did do not have a hole in his pants. Even though the SPIES was developed for preschool children and the participants' intellectual level was at a preschool level, the test was developed for intellectually normal children, not for children with special needs.

Third, there was a language limitation. Teacher interviews and children's conversations were recorded in Korean. The researcher translated them into English, which opens the

possibility for misunderstanding important concepts. The translation was necessary because the major language of this research is English. At times the children's conversations were grammatically incorrect, so the researcher translated the conversations into full English sentences, which might have changed the intent or the meaning of a child's ideas.

Lastly, because the researcher was also the therapist, served as the interviewer, and analyzed the data, bias is possible. Serving as the therapist and the researcher opens the door for the most bias since a relationship developed between the therapist and the children who participated in the study. The use of the SPIES as an objective measure mitigated some of the bias, but certainly not all. The therapist/researcher analyzed the qualitative data and this could have had a great impact on the reliability of that data. Moreover, there is a possibility that the merits of clay were analyzed in a more positive way because the researcher had a bias toward the therapeutic value of the clay work.

Implications for Further Research

The results of this study generated ideas for further research. Due to the limitation on the number of participants, the fact that the children's disabilities varied, and other limitations of this study, future studies may want to employ the following recommendations. Often children with autism communicate less than children with other disabilities. Studying only children with autism may shed light on how the use of clay in this population may be helpful to improve LOC. Future study might include the equal distribution of the various disabilities to provide more exact outcomes for these populations.

The teacher interviews focused only on the attitudes and behaviors of the children in the school setting. Assessing parent observations would improve the validity of the results. The time spent in school is limited and combining the qualitative data from both school and home

provides a more comprehensive picture of therapeutic change.

Although the SPIES was developed for preschool children, the students who participated in this study had difficulty understanding the questions because of their low intellectual level. Using a scale to assess LOC for children with intellectual disabilities would enhance the strength of the study. At the time of this study, the SPIES was found to be the closest fit, but a targeted LOC scale would be useful in the future.

The age range of the children who participated in this study was too large (from seven to twelve). The children in the study had varying developmental levels based on their age and disability. Studying children at a specific development level may be useful to the body of literature on LOC development. For this reason, targeting a smaller age range might target a specific developmental group.

Implications for Art Therapists

The first recommendation for art therapists based on the results of this study is to use more clay when working with special needs children. As Goryl (1995) reported in his research, less than half of the art therapists used clay in their clinical session because the qualities of clay may impede them from doing so. There may be a fear of art material because of its wet and plastic nature. Other art therapists may find clay to be difficult to use because it can be more difficult to prepare and clean-up is more time consuming than using paper and drawing materials. This study indicated that it was possible to use clay with little inconvenience to the therapist and that the clay had significant benefits for special needs children. Therefore, using clay as a therapeutic tool is highly recommended.

Therapists are encouraged not to dismiss clay work if a client does not immediately like to use it. As demonstrated in this study, children might resist certain art media at first. In fact, some

children in the clay only group refused to touch clay at first; however, they learned to enjoy clay work after a few sessions. Since special needs children can possess more fear of challenge than typical children because of their accumulated failure experiences. They may need more time to adjust to novel art materials and new tasks. It is recommended that art therapists try clay with clients and not dismiss this media too quickly.

One implication of the study is that clay may not be beneficial for every child. Some children might be good at and enjoy drawing more than using clay. Furthermore, it might be impossible to use clay if a child firmly refuses to use it.

Conclusion

The purpose of this research study was to assess how different art media impacts changes in LOC in children with intellectual disabilities. The results supported the rejection of the null hypothesis, which was special needs children who used 3D clay-based art materials in an art therapy group would gain a more internal LOC as measured by the *Stanford Preschool Internal-External Scale* (Mischel, Zeiss, & Zeiss, 1974) than children in the group using only two-dimensional art materials. Quantitative data demonstrated that children who used only clay-based, 3D art materials, in particular clay, showed greater change in internal LOC than children who used only 2D art media and children in the control group.

Qualitative data supported the findings of the study. As the statistics indicated, the 2D and 3D groups both improved their internal LOC compared to the control group, but the 3D group demonstrated more positive change than the 2D group. Teacher interviews brought to light that students in the 3D group demonstrated prolonged concentration and persistence in completing tasks even when they first failed. Furthermore, children in the 3D group showed more satisfaction in their artwork as they could observe improvement in their work by comparing

previous works, and they recognized their successes through gradually increased levels of effort and repeated clay work skills. Clay has benefits for special needs children due to its various therapeutic qualities; it can provide success experiences through easy operation to special needs children who have had few positive learning experiences. Furthermore, it was possible to rebuild when they failed to make what they wanted, especially for those who had fear of failure, with easy operation based on repeated processes and less pressure to make concrete figures.

Even though the sample size for the study was too small to generalize to the population, the results indicated that the use of clay-based 3D art media positively influenced a change in LOC. Furthermore, an increased internal LOC impacted attitude changes, specifically when the children attempted new tasks. They exhibited more success experiences in their academic endeavors.

APPENDIX A

APPROVAL LETTER

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 09/11/2014

To: Jeeyoon Kim ·

Address:

Dept.: ART EDUCATION

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 12/11/2013 Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 12/10/2014 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc:
HSC No. 2013.11477

APPENDIX B

APPROVAL REQUEST LETTER

Jeeyoon Kim
Ph.d Candidate
Art Therapy department, Florida State University
600 W. College Avenue, Tallahassee, FL 32306
850-644-2525

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN SCHOOLS

Dear Ms. Lee

My name is Jeeyoon Kim, and I am a art therapy ph.d student at the Florida State University in Tallahassee, FL, United States. The research I wish to conduct for my doctoral dissertation involves "Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea" The project will be conducted under the supervision of Dr. Marcia Rosal (Florida State University, a professor of art therapy).

I am hereby seeking your consent to conduct 10 sessions of art therapy since Nov. 2013 with your students.

I have provided you with a copy of my dissertation proposal which includes copies of the measure and consent and assent from to be used in the research process, as well as a copy of the approval letter which I received from the FSU Human Subject Committee once I got approval from them.

Upon competition of the study, I undertake to provide the Department of Art Education with a bound copy of the full research report. If you require any further information, please do not hesitate to contact me on . Thank you for your time and consideration in this matter.

Your sincerely,

Jeeyoon Kim
Florida State University

APPENDIX C

COVER LETTER

Jeeyoon Kim

Oct 10, 2013-10-11

Dear Ms. Lee, Eunjung:

I am sending this letter to explain the purpose of my study and to receive the research permission permission from your school.

The purpose of my study is identify if different art materials influence a change in the Locus of Control (LOC) of children with special needs in a normal elementary school. It will take one hour a week, for ten week.

I obtained my BFA at Hongik University, majored in Ceramics, and my MPH at Gachon University of Medical and Science, majored in Art Psychotherapy, and I am a doctoral candidate at Florida State University, majored in Art Therapy.

For my doctoral dissertation I would like to conduct 10 weeks of art therapy sessions with your students. It would be honor if I work with your students and your school.

Sincerely,

Jeeyoon Kim

APPENDIX D

CHILDREN'S CONSENT FORM

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea
Namsung Elementary School Study Consent Form (for children)

You are being asked to take part in a research study to identify if different art materials influence a change in the Locus Of Control of elementary school children with special needs. I am asking you to take part in this study. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

저는 당신이 서로 다른 미술매체가 초등학교 특수학급학생들의 내적통제에 영향을 미치는 차이점을 규명하기 위한 연구에 참여하기 위한 동의를 얻기 위해 이 서류를 보냅니다. 세심히 잘 읽어보시고 동의전에 어떠한 질문이 있다면 어떤 질문이라도 해주시기 바랍니다.

What the study is about: The purpose of this study is identify if different art materials influence a change in the Locus of Control (LOC) of children with special needs in a normal elementary school. You must be spending one hour a week, for ten weeks, to take part in this study.

이 연구의 목적은 서로 다른 미술매체가 일반초등학교내 특수학급 아이들의 내적통제에 미치는 영향을 연구하기 위함입니다. 당신은 일주일에 한시간, 10 주간 연구에 참여하게 됩니다.

What I will ask you to do:. There are three groups; a group with two-dimensional art, a group with clay-based three-dimensional art, a group with no intervention. You will be assigned to these three group randomly

총 15 명의 학생들이 세개의 그룹으로 나뉘어 2 차원적 매체집단, 3 차원적매체집단, 통제집단으로 나뉘게 됩니다. 학생들은 임의로 집단에 배정됩니다.

Risks and benefits:

There is a risk to you. I will choose safe materials and will encourage you not to feel a sense of frustration during creating artwork. . [Note: For studies posing no specific risks, use the

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea
IRB standard minimal risk statement, "I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life."]

당신에게 리스크가 있을 수 있습니다. 저는 안전한 재료를 사용하고, 당신이 미술작업 과정중에 좌절감을 느끼지 않도록 격려할 것입니다. [비고: 특별한 리스크에 관해서 IRB 스탠다드를 차용하겠습니다 "이 실험을 통해 일상에서 만날 수 있는 리스크보다 더 큰 리스크를 기대하지 않는다"]

There are benefits to you. Art therapy will help you to enhance your internal locus of control which can influence on your other academic field. But there are no benefit if your child participate in controlled group.

귀하의 자녀에게 혜택이 있을 수 있습니다. 미술치료는 귀하의 자녀가 내적통제를 강화하여 다른 학습적인 부분에서도 긍정적 영향을 미칠 수 있습니다. 그러나 통제집단에 속한다면 혜택이 없습니다.

Your answers will be confidential. The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records.

이 연구의 기록은 사적으로 보관됩니다. 출판되는 어떠한 형태에서도 당신에 관한 정보는 노출되지 않습니다. 연구 기록은 접근이 제한된 컴퓨터안에 보관되며 연구자만이 접근 가능합니다.

Taking part is voluntary: Taking part in this study is completely voluntary. If you decide to take part, you are free to withdraw at any time. If you refuse to take part, I can randomly choose another student.

연구 참여는 순전히 자율입니다. 연구에 참여하기로 결정했어도, 언제든 철회할 수 있습니다. 참여를 원치 않는다면 다른 참가자를 임의로 선택할 것입니다.

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

If you have questions: The researcher conducting this study is Jeeyoon Kim. Please ask any questions you have now. If you have questions later, you may contact Jeeyoon Kim at . If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

연구자의 이름은 김지윤입니다. 질문이 있다면 언제든지 로 연락주시기 바랍니다. 연구에 있어서 귀하와 귀하의 자녀의 권리에 대해 궁금하실 대에는 Institutional Review Board (IRB) 에 1-607-255-5138 번으로 문의 주시거나 홈페이지 http://www.irb.cornell.edu 에 접근하시기 바랍니다. 불평사항이 있다면 Ethicspoint (www.hotline.cornell.edu) 로 익명제보하실 수 있으시고, 1-866-293-3077 로 문의하실 수 있습니다. Ethicspoint 는 대학과 개인사이에 발생할 수 있는 불평사항을 접수하는 독자적인 기관입니다.

You will be given a copy of this form to keep for your records.

이 서류의 복사본을 보관해 주시기 바랍니다.

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

동의진술: 나는 위의 정보를 읽고 숙지하였으며, 질문에 대한 대답을 받았고, 이 연구에 참여하는 것을 동의한다.

Your Signature _____

Date _____

Your Name (printed)

_____

In addition to agreeing to participate, I also consent to having the photo file of your artwork.

Your Signature _____

Date _____

Signature of person obtaining consent _____

Printed name of person obtaining consent _____

Date _____

This consent form will be kept by the researcher for at least three years beyond the end of the study and was approved by the IRB on [/ /].

APPENDIX E

PARENTAL CONSENT FORM

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea
Namsung Elementary School Study Consent Form (for parents)

Your child is being asked to take part in a research study to identify if different art materials influence a change in the Locus Of Control of elementary school children with special needs. I am asking your child to take part in this study. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

저는 귀하의 자녀가 서로 다른 미술매체가 초등학교 특수학급학생들의 내적통제에 영향을 미치는 차이점을 규명하기 위한 연구에 참여하기 위한 동의를 얻기 위해 이 서류를 보냅니다. 세심히 잘 읽어보시고 동의전에 어떠한 질문이 있다면 어떤 질문이라도 해주시기 바랍니다.

What the study is about: The purpose of this study is identify if different art materials influence a change in the Locus of Control (LOC) of children with special needs in a normal elementary school. Your child must be spending one hour a week, for ten weeks, to take part in this study.

이 연구의 목적은 서로 다른 미술매체가 일반초등학교내 특수학급 아이들의 내적통제에 미치는 영향을 연구하기 위함입니다. 귀하의 자녀는 일주일에 한시간, 10 주간 연구에 참여하게 됩니다.

What I will ask your child to do: There are three groups with 15 children; a group with two-dimensional art, a group with clay-based three-dimensional art, a group with no intervention. Your children will be assigned to these three group randomly.

총 15 명의 학생들이 세개의 그룹으로 나뉘어 2 차원적 매체집단, 3 차원적매체집단, 통제집단으로 나뉘게 됩니다. 학생들은 임의로 집단에 배정됩니다.

Risks and benefits: There is a risk to your child. I will choose safe materials and will encourage your child not to feel a sense of frustration during creating artwork. . [Note: For studies posing no specific risks, use the IRB standard minimal risk statement, "I do not

FSU Human Subjects Committee approved on 2/03/2014 Void after 12/10/2014 HSC # 2013.11477

anticipate any risks to you participating in this study other than those encountered in day-to-day life."]

귀하의 자녀에게 리스크가 있을 수 있습니다. 저는 안전한 재료를 사용하고, 귀하의 자녀가 미술작업과정중에 좌절감을 느끼지 않도록 격려할 것입니다. [비고: 특별한 리스크에 관해서 IRB 스탠다드를 차용하겠습니다 "이 실험을 통해 일상에서 만날 수 있는 리스크보다 더 큰 리스크를 기대하지 않는다"]

There are benefits to your child. Art therapy will help your child to enhance your child's internal locus of control which can influence on your child's other academic field. But there are no benefit if your child participate in controlled group.

귀하의 자녀에게 혜택이 있을 수 있습니다. 미술치료는 귀하의 자녀가 내적통제를 강화하여 다른 학습적인 부분에서도 긍정적 영향을 미칠 수 있습니다. 그러나 통제집단에 속한다면 혜택이 없습니다.

Your child's answers will be confidential. The records of this study will be kept private. In any sort of report I make public I will not include any information that will make it possible to identify your child. Research records will be kept in a locked file; only the researchers will have access to the records.

이 연구의 기록은 사적으로 보관됩니다. 출판되는 어떠한 형태에서도 귀하의 자녀에 관한 정보는 노출되지 않습니다. 연구 기록은 접근이 제한된 컴퓨터안에 보관되며 연구자만이 접근 가능합니다.

Taking part is voluntary: Taking part in this study is completely voluntary. If you decide to your child take part, you are free to withdraw at any time. If you refuse to take part, I can randomly choose another student.

연구 참여는 순전히 자율입니다. 연구에 참여하기로 결정했어도, 언제든 철회할 수 있습니다. 참여를 원치 않는다면 다른 참가자를 임의로 선택할 것입니다.

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

If you have questions: The researcher conducting this study is Jeeyoon Kim. Please ask any questions you have now. If you have questions later, you may contact Jeeyoon Kim at

If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

연구자의 이름은 김지윤입니다. 질문이 있다면 언제든

로 연락주시기 바랍니다. 연구에 있어서 귀하와 귀하의 자녀의 권리에 대해 궁금하실 대에는 Institutional Review Board (IRB) 에 1-607-255-5138 번으로 문의 주시거나 홈페이지 http://www.irb.cornell.edu 에 접근하시기 바랍니다. 불평사항이 있다면 Ethicspoint (www.hotline.cornell.edu) 로 익명제보하실 수 있으시고, 1-866-293-3077 로 문의하실 수 있습니다. Ethicspoint 는 대학과 개인사이에 발생할 수 있는 불평사항을 접수하는 독자적인 기관입니다.

You will be given a copy of this form to keep for your records.

이 서류의 복사본을 보관해 주시기 바랍니다.

FSU Human Subjects Committee approved on 2/03/2014 Void after 12/10/2014 HSC # 2013.11477

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent my child to take part in the study.

동의진술: 나는 위의 정보를 읽고 숙지하였으며, 질문에 대한 대답을 받았고, 나의 자녀가 이 연구에 참여하는 것을 동의한다.

Your Signature _____ _____

Date _____

Your Name (printed) _____

_____

In addition to agreeing to participate, I also consent to having the photo file of your child's artwork.

Your Signature _____

Date _____

Signature of person obtaining consent _____

Printed name of person obtaining consent _____

Date _____

This consent form will be kept by the researcher for at least three years beyond the end of the study and was approved by the IRB on [/ /].

FSU Human Subjects Committee approved on 2/03/2014 Void after 12/10/2014 HSC # 2013.11477

APPENDIX F

SPECIAL INSTRUCTOR'S CONSENT FORM

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea
Namsung Elementary School Study Consent Form (for Special instructor)

You are being asked to take part in a research study to identify if different art materials influence a change in the Locus Of Control of elementary school children with special needs. I am asking you to take part in this study. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

저는 당신이 서로 다른 미술매체가 초등학교 특수학급학생들의 내적통제에 영향을 미치는 차이점을 규명하기 위한 연구에 참여하기 위한 동의를 얻기 위해 이 서류를 보냅니다. 세심히 잘 읽어보시고 동의전에 어떠한 질문이 있다면 어떤 질문이라도 해주시기 바랍니다.

What the study is about: The purpose of this study is identify if different art materials influence a change in the Locus of Control (LOC) of children with special needs in a normal elementary school. You must be spending 30 minutes before and after the study.

이 연구의 목적은 서로 다른 미술매체가 일반 초등학교내 특수학급 아이들의 내적통제에 미치는 영향을 연구하기 위함입니다. 당신은 연구 전후에 30 분씩 인터뷰를 하게 됩니다.

What I will ask you to do: If you agree to be in this study, we will conduct an interview with you. The interview will include questions about children's behavior, attitude, and academic achievement in your class.

연구참여에 동의하시고 나면, 인터뷰를 진행하게 됩니다. 인터뷰는 학생들의 행동, 태도, 수업 내 학업적 성취 정도 등이 포함됩니다.

Risks and benefits:

There is no risk to you. [Note: For studies posing no specific risks, use the IRB standard minimal risk statement, "I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life."]

FSU Human Subjects Committee approved on 2/03/2014 Void after 12/10/2014 HSC # 2013.11477

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

당신에게 리스크는 없습니다 [비고: 특별한 리스크에 관해서 IRB 스탠다드를 차용하겠습니다 "이 실험을 통해 일상에서 만날 수 있는 리스크보다 더 큰 리스크를 기대하지 않는다"]

There are no benefits to you.

당신에게 혜택은 없습니다

Your answers will be confidential. The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you, your school, and your students. Research records will be kept in a locked file; only the researchers will have access to the records.

이 연구의 기록은 사적으로 보관됩니다. 출판되는 어떠한 형태에서도 당신에 관한 정보는 노출되지 않습니다. 연구 기록은 접근이 제한된 컴퓨터안에 보관되며 연구자만이 접근 가능합니다.

Taking part is voluntary: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part, you are free to withdraw at any time. If children who are chose as participations of this study refuse to take part, we can randomly choose another children.

연구 참여는 순전히 자율입니다. 연구에 참여하기로 결정했어도, 언제든 철회할 수 있습니다. 참여를 원치 않는다면 다른 참가자를 임의로 선택할 것입니다.

If you have questions: The researcher conducting this study is Jeeyoon Kim. Please ask any questions you have now. If you have questions later, you may contact Jeeyoon Kim at . If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as

a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

연구자의 이름은 김지윤입니다. 질문이 있다면 언제든지
로 연락주시기 바랍니다. 연구에 있어서 귀하와 귀하의 자녀의 권리에 대해 궁금하실 대에는 Institutional Review Board (IRB) 에 1-607-255-5138 번으로 문의 주시거나 홈페이지 http://www.irb.cornell.edu 에 접근하시기 바랍니다. 불평사항이 있다면 Ethicspoint (www.hotline.cornell.edu) 로 익명제보하실 수 있으시고, 1-866-293-3077 로 문의하실 수 있습니다. Ethicspoint 는 대학과 개인사이에 발생할 수 있는 불평사항을 접수하는 독자적인 기관입니다.

You will be given a copy of this form to keep for your records.

이 서류의 복사본을 보관해 주시기 바랍니다.

Locus of Control and Two-dimensional versus Three-dimensional Art Therapy Interventions with Special Needs Children in South Korea

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

동의진술: 나는 위의 정보를 읽고 숙지하였으며, 질문에 대한 대답을 받았고, 이 연구에 참여하는 것을 동의한다.

Your Signature _____

Date _____

Your Name (printed)

_____

In addition to agreeing to participate, I also consent to having the photo file of students' artwork.

Your Signature _____

Date _____

Signature of person obtaining consent _____

Printed name of person obtaining consent _____

Date _____

This consent form will be kept by the researcher for at least three years beyond the end of the study and was approved by the IRB on [/ /].

APPENDIX G

THE STANFORD PRESCHOOL INTERNAL-EXTERNAL SCALE

Items	Proportion of internal answers
1. When you are happy, are you happy I+ a. because you did something fun, or b. because somebody was nice to you?	.574
2. When somebody tells you that you are good, is that I+ a. because you really have been good, or b. because he is a nice person?	.569
3. Do you think I brought you to the surprise room (the experimental room) I+ a. because you have been good today, or b. because I'm just a nice man (lady)?	.493
4. When your mother gives you a cookie, is that I+ a. because you need a cookie, or b. because she has too many cookies?	,436
5. When somebody brings you a present, is that I+ a. because you are a good girl (boy), or b. because they like to give people presents?	.644
6. When you draw a whole picture without breaking your crayon, is that I+ a. because you were very careful, or b. because it was a good crayon?	.569
7. If you had a shiny new penny and lost it, would that be I- a. because you dropped it, or b. because there was a hole in your pocket?	.460
8. When you are sad and unhappy, are you sad and unhappy I- a. because you did something sad, or b. because somebody wasn't very nice to you?	.175

Continued

9. When you play a game and lose, do you lose I- a. because you just didn't play well, or b. because the game was hard?	.261
10. When somebody stops playing with you, is that I- a. because he doesn't like the way you play, or b. because he is tired?	.223
11. When you get a hole in your pants, is that I- a. because you tore them, or b. because they wore out?	.308
12. If you had a pet turtle and he ran away, do you think that would be I- a. because you did something to make him leave, or b. because there was a hole in his cage?	.137
13. When you are drawing a picture and your crayon breaks, is that I- a. because you pushed too hard, or b. because it was a bad crayon?	.493
14. When you can't find one of your toys, is that I- a. because you lost it, or b. because somebody took it?	.578

APPENDIX H

ART THERAPY PROGRAMS

Art Therapy Programs for 2D Group

Session Number	Theme	Materials
1	Free drawing	Oil pastel, white drawing paper
2	Collage	Magazines, glue, scissor,
3	Mandala Creating	Big color paper, crayon, markers
4	Creating Flower pot	Pre-cut flower and leaf shape color paper, big color paper, glue, crayon, color pencil
5	Hand Stamping	Water color pigment, scissor, glue, pastel, white drawing paper, play cone
6	From the Basic Shapes	Origami paper, scissor, glue, black color paper, circle-shaped color paper, oil pastel

7	Self Portrait	Printed photo of children, glue, scissor, origami paper, oil pastel
8	Making Latticed Pattern	Color paper, scissor, glue
9	Body Drawing	Whole paper, oil pastel
10	Cooperative Art Making	Oil pastel, glue, polystyrene, sorghum straw, scissor

Art Therapy Programs for 3D Group

Session Number	Theme	Materials
1	Orientation.	Clay
2	Making a cup- introducing basic skills to make a cup (pinching & coiling)	Clay, clay tools
3	Creating one's own world	Disposable table plates, wooden chopsticks, clay
4	Making a cup-Attaching handle on the cup	Clay, clay tools
5	Making a cup-making a cup with lids	Clay, clay tools
6	Making clay a puppet	A4 papers, fabrics, clay

7	Making a cake	Clay, clay tools
8	Making a cup	Clay, clay tools
9	Making a house-making house with roof with	Clay, clay tools
10	Making a cup-make a big and trimmed cup	Clay, clay tools

APPENDIX I

OBSERVATIONS

Observation for 2D group

Session One for 2D Group (orientation)

Session one began with an introduction of the researcher and the researcher tried to build rapport with participants. The researcher and participants introduced themselves, but did not spend much time to build rapport among members because they have classes in the school already. The group reviewed the rules of the group, which include refraining from moving around during the sessions, using honorific to older members, avoiding inappropriate aggressive behavior, and using restroom before sessions. For the first session, the children were asked to draw anything what they want in the empty paper with oil pastel. Although Jack could draw some concrete shapes, but he tried to leave his seat almost eight times during the session. Kathy only scribbled on the paper, and Liam only wrote down the number of subway line in Seoul. Sera drew some shapes and wrote down some words saying “I am sick” Kathy mentioned that “I can’t draw” “I don’t want to draw” several times during the session.

Session Two for 3D Group (collage)

In this session, children used magazines. Since magazine offers concrete images that can be used directly, it might mitigate the pressure to draw something by their hands. When the researcher distributed the magazines to the children, their attention was focusing on watching various photos in the magazines. One magazine, glue, and safe-scissors, which do not have metal edge, were distributed for each participant. The children were asked to (1) choose one magazine (2) choose several images that attracts them and that are related with them, and (3) arrange the

images on the big paper.

The magazine engrossed Sera and she said “this one! And this one!” by pointing the photos with her fingers. She also explained that “I am relaxed because I don’t need to draw.” Since she possesses low concentration, she could not focus on cutting the magazine by herself, which required the therapist to help her.

Kathy interfered other participants by grasping pieces of magazine that were already cut by other participants and by throwing them. Furthermore, since she was not good at using scissor, she needed the therapist’s help. Liam only cut the images that shows simple figures such as triangle, square, or simple English alphabet.

Session Three for 2D Group (Creating Mandala)

For the second session, colored big paper, crayon, and markers were prepared. Participants are expected to express freely with any theme what they want in Mandala. Then the participants were asked to (1) chose one big color paper among yellow, pink, sky blue, yellow green, and white (2) choose one crayon color that they want and draw a big circle on the paper (3) draw anything with drawing media like crayon or markers that can express about them inside and outside of the circle

When Kathy receive the crayon, she grasped a piece of crayon and broke one. The - researcher warned that spoiling art materials is prohibited because they are to be shared with other children. She answered “Yes”, but she did the same thing when the researcher was not looking at her. Before she begins to draw, she said that “I can’t draw a circle. I am a Down Syndrome child.” The researcher encouraged that this is not an art class, and nobody judges her drawing, but she used the crayon roughly and said “I cannot draw” repeatedly. It took much time to persuade her to draw it. Sera also rejected to start drawing. She asked “What if you draw and I

just paint it? I am not good at drawing" Sera drew a small circle quickly and stated "see, I can't." The researcher offered a new paper and encouraged to re-try it.

Becky drew a big circle on the yellow paper, and divided the circle with many pieces. Since there was time limitation for one session, the researcher explained that Sera should calculate the time if she want to complete her work in time. She said "Maybe, I can finish" However, as time passed, she realized that she cannot finish the work in time. She asked help to the researcher and stated "I could not did it. I knew it."

Session Four for 2D group (creating flower pot)

In this session, the researcher asked clients to create a piece of flower pot on the paper with pre-cut color papers and crayon on a big color paper. It was expected for children to recognize the upper and lower position and connect flower and pot one by one. The researcher cut the color paper as flower shape with various colors and encouraged participants to make a flower pot on the color paper. The researcher asked to (1) choose one big color paper, (2) draw a pot on the bottom of the paper with crayon or color pencils, (3) choose the pre-cut flower shape color paper pieces and attached above the pot (4) connect flower and flower pot using crayon or color pencils.

Jack drew a pot on the bottom of the paper and filled it with crayon. However, when he finished to paint the pot, he tried to take off the apron and washed his hand. The therapist explained the next process and he started to attach the flowers above the pot. Yet, he tried to take off the apron even though he did not draw stems of them. He needed extra explanation again. He tried to leave his seat five times during the session.

Session Five for 2D Group (hand stamping)

In this session, the children were asked to stamp their hands on paper and decorate the surround with various art materials. It was expected for children to experience non-resistant materials with their hands. The researcher asked to (1) paste water color pigment on their palm, and stamp it on the white paper, (2) cut the stamped-hand shape with scissors and attach them on the other white big paper with glue, (3) draw what they want spontaneously with various art materials such as crayon, pastel, pencil, and play corn.

When Sera was given the task, she hesitated to stain her hands with water color pigment. Furthermore, since she stained so much little amount of pigment on her palm, it did not looks like palm when she stamped her palm on the other paper. After she experienced that staining too little makes her do same thing again, she was almost cry. However he said “I want to finish it this time.” Then she covered much amount of pigment on her palm and successfully stamped it. She tried to cut her orange color palm with scissor, but she found it is difficult to cut off the hand from the paper. She outlined the palm shape with pencil and cut off them. After she attached her palm stamp on the other paper, she picked play corn. On the left side of palm, she wrote that “I am so much cute”

Kathy and Liam refused to stain water color pigment on his palm. Liam kept saying “I will not do that” and tried to hide his hands. The researcher explained that it is safe and it is easily removed by water. Becky asked that “Why Liam is scaring the pigment? He is the oldest” He stared other participants and said “a little bit.” 5 helped him paint on his palm and when he stained his hand with water color brush, he quickly stamped his palm on the paper. After he washed his hands, he took of his apron. The therapist should explained that there are additional process to finish the work.

Session Six for 2D Group (from the basic shapes)

In this session, the children stared from the basic forms: circle, square, and triangle. Using origami paper and stickers with geometric shape, children were expected to compose the space with simple shape and vivid color. Using non-descriptive media was expected for children not to feel the gap of their artistic abilities. The researcher asked the participants to (1) fold origami paper to make triangle and square shape, (2) use geometric shaped stickers to compose the space, (3) put additional shapes using origami paper and scissors, (4) add anything what they want.

When Becky made house shape with triangle and square folded origami paper, all other children in the class imitated it. Therefore, all children made house on their paper. When Becky found that all children were making house following her, she stated "Wow, I feel I am a teacher. I think it's because I did well"

As other children, Kathy sometimes brought Sera's paper or sticker without permission. She also squeezed Sera's cut paper and made wrinkle. When the researcher gives caution, she answered quickly that she will not do it again, but she did it repeatedly. When the researcher asked why she bothers other's work she answered "because I am the worst in this class and others are doing well. I hate it."

Session Seven for 2D Group (self portrait)

In this session, children made their artwork based on the photographs of their faces. The researcher took photos of the participants at the beginning of the session, and the printed photos with photo print. Printed photos were cut and distributed to the children. It is expected for the children to put them in the middle of white space and make them as a heroin of the artwork. The children were asked to (1) take photos and print them, (2) attach their photos in

the middle of paper, (3) add and draw what they want to be beside them using color paper, origami paper, glue, scissors, markers, crayon, and color pencils.

Almost children enjoyed creating artwork with their photos, and showed pleasant response to their work. They showed high concentration during the session.

Jack drew two people behind his photo and filled the sketch with oil pastel. As previous sessions, he squeeze the oil pastel with strong pressure. His sketch was covered with filled oil pastel and the shape was changed. He stated that "mom, dad" with pointing his finger to them. He did not stop painting with oil pastel until the researcher said that it is enough. He tried to leave his seat three times during the session.

Session eight for 2D Group (making latticed pattern)

In this session, the participants made latticed pattern with color paper. It was expected for children to cut the color paper with strong focusing, and remember to arrange the stripes with repeated performance. The children were asked to (1) choose two color of square paper, (2) fold the square shape color paper four times with same directions, (3) cut the paper with scissor following the folded lines, (4) put the first color strip horizontally, and the second strip vertically, then put the first color horizontally, and the second color vertically. Repeat this process until it is finished.

When Sera was given the task, she did not follow the directions. She folded the color paper randomly, and cut the paper as she wants. The researcher demonstrated and explained the process repeatedly until she can participate in the making process. However, she responded that she cannot understand the process. She easily asked help to the researcher when she meets the trouble. She asked "Am I doing right?" and "Please help me" every time she thinks she put the

color band on the wrong position. The researcher tried to let her solve the problem by herself but there were additional help.

Since Kathy could not cut the paper following the folded line, the researcher grasped Kathy's hand and helped her use the scissor. She could not understand how to arrange the paper string, and she had a trouble to attach the strings on the big paper. She could not understand which side she should paste the glue and which side should be on the big paper. She stuck all strings on the paper with superfluous glue. Because she could not make enough color string with her paper, she used other children's paper bands. She also could not understand and perform following the direction.

When Becky was given the task, she said "I cannot understand how to do it." She asked same question several times, and the researcher explained the process repeatedly. Every time she put the color string on the paper, she asked "is it right?" or "Please tell me if I am not right" She paste the paper string properly without outstanding mistake, but she kept being worried about her process.

Session Nine for 2D Group (body drawing)

In this session, the participants created one big artwork together. The researcher explained that only one person will be the model for the group work. They chose Kathy as a model because she was the youngest and the shortest in the group. Since it was the first time to work without table, they were distracted, and talked much more than other session. It was expected that the children can cooperate each other for group work, and completed the work together with high sense of accomplishment. The children were asked to (1) choose the model who will lie down on the whole paper, (2) draw the outline of the model, (3) add drawing, paint, or decorate it as they want.

Since Kathy was the youngest and shortest in the groups, children chose her as a model for the body drawing. She lied down on the paper, and other children begun to draw the outline of her body. However, she showed uncomfortable to keep the same posture for several minutes. She started to move her body, and other children complained. Kathy stated “I feel like I become a heroin. Everyone is focusing me” After the outline drawing was finished, she scribbled the paper with oil pastel. She laughed a lot and saying “I am here!”

Becky actively participate in drawing Kathy’s body, and she drew eyes, nose, and mouth on the paper. However, Jack covered them with oil pastel. He divided the head part with colors. He sometimes stared the researcher with smiling face, and said “head.” Since he covered the face with oil pastel, Becky complained to Jack about that, but Becky did not response to them.

Session Ten for 2D Group (cooperative art making)

In this session, the participants created one art work together as previous session. Everyone was given one piece of pre-sketched paper, completed their own pieces, and combine them. It was expected to learn consideration for others when choosing the pieces and have a sense of accomplishment through completed cooperation work. The researcher distributed pre-sketched papers and several art media, such as oil pastel, color pencil, water color, markers, sorghum straw, and glue. Since the pieces were six, the remained one was supposed to be drawn by the researcher, but Sera tried to drew two pieces because she finished her work fast. The children were asked to (1) choose one piece of paper, (2) complete the paper as they want, (3) combine separated papers together.

Sera choose the middle one and said “it looks it is the most complex one” The structure of the sketch was complex, but she completed it by simple coloring. After she completed the piece quickly, she said that she wants to color one more piece. She brought another one, and colored as

same way. However, she choose another media, the polystyrene ball. She found that Becky was using the polystyrene ball and was decorating her piece. Sera also used one and stick a straw. She stated “look, I am so fast. You think I am genius?” When she looked that the combined artwork, she stated that it is too much wonderful.

Kathy used water color, oil pastel, and some spangle on the paper. She stated “my drawing is awful” but she laughed and said “it might be okay if all pieces are combined”

As most previous sessions, Liam stated “I am done” when he thought he was over. He did not show any reaction to the combined group work.

After the works were finished Becky requested special teachers that she hope to attach the combined artwork on the wall of the class room. Participants congregated in front of their artwork and showed satisfaction. Sera said that the she hopes the work would be attached on the wall of the classroom for long time

Observation for 3D group

Session One for 3D Group (orientation)

Session one began with an introduction of the researcher and the researcher tried to build rapport with participants. The researcher and participants introduced themselves, but did not spend much time to build rapport among members because they have classes in the school already as 2D group. The group reviewed the rules in the class, which include refraining from moving around during the sessions, using honorific to older members, avoiding inappropriate aggressive behavior, and using restroom before sessions. Then participants are asked to touch the clay and freely manipulate it. The researcher encouraged the children to explain what they feel from manipulating, to create clay figures, and to express what they looks like. Because the population of the group is diverse such as ID, LD, and ASD, they did not show even linguistic

level; participants with ASD (Brandon & Chris) hardly speck during classes, while Jenny and Brian with LD and Emma with ID relatively speak than others.

Brandon refused to touch clay because it looks messy and he did not want to make his hands dirty. Brandon mentioned a same sentence repeatedly "I will not touch this." He tried to touch clay and stared the researcher with stereotyped voice. Chris did not have rejection to touch clay. He created several identical features named "snow man." He made four snow men and requested the researcher to give him colored clay. Since it was the first time and it was free-making, the researcher offered colored clay for decorating snow men. He named each snow man and did role play with the figures. Jenny also did not refuse to touch clay. When she kneaded clay, she said she does not like to create claywork because artwork that she created had been broken after the class is over. The researcher explained that if one bakes claywork in the kiln, the artwork will be remained forever. She was so much excited on it. Emma admired for the feeling to touch clay. She kept making exclamation like "Wow, this is so much soft" and "it keeps changing its shape!" She associated clay with feces saying that she still sometimes make a mistake to control her feces. She made a piece of feces (which she called) and show other participants. Brian refused to participate in claywork. Brian, who are suffering from learning disabilities, presented fear of failure for doing something. He explained that he does not know how to manipulate clay and he is afraid to break the claywork. When the researcher asked Brian what he wants to do for the class, he answered that he want to learn step by step with the minimum failure.

Session Two for 3D Group (making a cup)

In the session two, the children were asked to learn basic claywork skills, such as pinching and coiling with the clay to create simple cups. At first, the researcher demonstrated making hole

from a chunk of clay with her thumbs, and pinching with index fingers, middle fingers, and thumbs. The participants tried to imitate for creating cup-shaped work. Once they follow the process, the researcher instructed to make coiling with clay using palms. By moving back and forth and inside to outside, the researcher showed how the clay coil can be stretched.
The researcher asked children that do not try to create tall and great cup now because they have many chances to make cups and they can make better-shaped cups next time.

After making a cup, the researcher asked the children about their feelings during working with clay, the change of emotion before manipulating clay and after it, and difficulties and easiness during the work.

At first, Brandon did not try to grasp the clay as the previous session, however, he watched what the researcher is doing using basic skills, and asked if he is able to follow the steps. Right after he asked it, he answered by himself that he will not do it. He repeated the saying that "I cannot do this" several times with being close to tears. For five minutes, he did not start even the other participants already began to make cups. However, after then, he followed the given directions that he can easily copy. He repeated the saying "You see. Please praise me."

Chris showed desire to participate in art therapy, but his work was not successful because he was rushing around when he try to make a cup. He grasped the wall of the clay cup too strongly, and the wall could not stand and collapsed. He repeated this process in fast pace, and every time he failed, he annoyingly yelled out that "Difficult! Not working" He threw the lump of clay on the floor, grasped it, tied to make a cup, failed, and yelled again. After he repeated this process several times, the researcher slightly helped him to complete his work. He said "Wow. I did." He stated that was so angry when he failed to makes a cup, but he could feel pleasure when he finally succeeded. He also added that "I will grasp this [clay]. It's fun. It's soft."

Brian said he is pleased to learn how to manipulate the clay. He explained that other teachers in the school did not instruct how to make, but allowed them freely create something (usually animals). He tried to copy the researcher's demonstration, and he did not fail piling the coils up. After he finished his work, the researcher asked if there is something to add on the cup, he answered that he want to learn more and add later.

Session Three for 3D Group (creating one's own world)

In this session, children were asked to create one's own world with clay on the disposal plats. The researcher explained the meaning of 'world' to the participants and encouraged them to build freely on the plats. The researcher distributed wooden chopsticks, disposal plats, grains, dried jujubes, beans, clay, and clay tools to the children. The researcher asked them to grasps the materials distributed. The children clasped the beans and grains on their hands and scattered them on the table. Emma tried to eat jujubes and grains on the table and Jenny blocked Emma not to eat them. Emma stared work first. She begun to fill in the disposal plat with clay, and other participants imitated her.

Brandon grasped clay in his palm and asked more clay. It was totally different from the first day when he refused to touch clay. When he tried to bond clay and wooden chopsticks, he repeatedly said "I can't do it. Please help." The Researcher demonstrated how to make the piece of clay together at the other plat in front of Brandon and he tried to follow it, saying "It is not working well." It took 15 minutes to make a clay plat, but he could fix the wooden chopstick and pour grains on the plat

At first, Emma hesitated to make claywork. She said "Jenny is doing very well. Mine will be compared with her." The researcher emphasized that doing well or not is not important in this time and Emma also has her own qualities. She break the chopstick and fix them on the clay plat.

During the time, she tried to eat grains and jujubes. She kept observing other children's working process and tried to imitate some parts. When the researcher asked her about the feeling of the session, she answered that she answered that she might can make better next time, but cannot satisfied in this session.

Session Four for 3D Group (making a cup)

In this session, the children are asked to create cup with handle. The process to coil and pile up the clay is same as the previous session, but handle is added to the plan cup, and the researcher encouraged them to make taller and stronger cups than precious cups. They were offered same materials, such as clay and clay tools for the work.

Brandon showed quite accustomed feature to manipulate clay. He did not reluctant to touch clay anymore. He made a bottom of the clay, created coils, and piled up on it. He said "Wow, I am good" In this session, he finished the work for the first time. He immediately washed his hands right after his work is over.

Chris made the bottom and piled the coil of clay quickly. He made even thickness of clay coil, piled well, but he pinched so strong that the body of his cup could not stand and fell down. He repeated this process several times. Even though the researcher asked him to slow down his steps, he answered "No" and he finally cried. When the researcher tried to help his work, he sometimes shouted saying "Do not touch my work. This is mine." After failing several times, he eventually asked the researcher to help him, and observed how it is fixed. The researcher manipulated his work only for 3-4 minutes, but he suddenly said "I can do it now. Go away." After his work is finished, he kept asking when his cup will be burned in the kiln.

Jenny said she wants to create special cups as she mentioned at the previous session. She asked if she should create same shape of cup as cylinder. She said she hopes heart-shaped cup as

a gift of wedding anniversary of her parents. However, making heart-shaped cup was not easy for her. She could make heart-shaped bottom, but she had trouble in piling up coils. She could not maintain the heart-shape, but it gradually became cylinder. Since she said she will not make cylinder at this time, she was so disappointed at the result. The researcher showed how to modify the shape of wall with clay tools and asked her to work by herself. It took much time to revise the cup as heat-shaped, however, she was satisfied with her result.

Emma looked through Brandon's work and tried to imitate his. She did not show any trouble to make the cup in this session, and was seriously concerned about which kind of handle she will attach.

Session Five for 3D Group (making a cup)

In this session, the researcher asked the children to make cups with lids. The process to make cups was same as the previous session, but only lid was added. The participants were encouraged to make similar size of lids with their cups after they finished to make cups. The researcher encouraged them to make the cups by themselves as possible as they can, but helped them if there were needs for modification.

Since Brandon already received a kiln burned cup that he made in the previous session, he looked exciting with a feeling of expectancy. The first question that he asked after the researcher announced the instruction was "Will my cup be burn in the kiln again?" He continuously asked many questions such as, the process of kiln burning, why the cup becomes small after burning, and how the cup becomes hard after burning. He stated that the process to make a cup is much interesting and easy than he was expected.

When Chris was asked to start to work, he begun to make a lid first. The researcher said that the diameter of the lid should be fit with that of the cup, so he should make the body of the cup

first. However, he was attracted to make a lid, repeating "I will make a lid, I will make a lid." The researcher decided to fit the size of cup's body to that of the lid, and let him continue to make the lid first. After he completed to make a lid, he started to make the body of the cup. It was difficult for him to make a similar size of cup's body because he pinched the wall of the cup too strongly. After several trial and error, he made a fit body with the lid that he made previously. However, when he found that the diameter of the body and the lid is same, he started to bond them together. Although the cup could not be used as a cup even after it was burned in the kiln, he stated that "It [the lid] will not be gone."

When Emma was given the task, she said "I may make the cup by myself at this time, and may need your help." She tried to make a bottom of the cup and the coil by herself for a while, but soon she requested help. She had trouble in making the wall of the cup straight. She did make an even thickness of clay coils, but she could not pile up them on the bottom straightly. The researcher only revised the slope of the wall, and explained that only little help is added on this process, and almost process was done by her. After she made the body of the cup, she made a lid that was bigger than the body. When the researcher asked if she want to fix the size, she answered she loved the big lid and it looks special.

Session Six for 3D Group (making a cup)

In this session, the participants were asked to make a human-looking doll with clay and fabrics on paper. The researcher gave a question what humans' body consist of. The children answered several parts of the body and the researcher organized the answers. Then, the researcher showed various textures and colors of fabrics, which will be the clothes of the clay doll. With the brief explanation of humans' body, the children were asked to 1) make humans

body with clay on the paper, 2) choose fabrics that would dress on the clay doll, 3) and cut the fabrics and dress the dolls with the fabrics.

Emma watched how the other children make clay dolls before she started to make, and imitated other's process. After she observed Jenny made ribbons on her clay doll, Emma said she also wants to make ribbons on her doll. The researcher demonstrated the ribbon making, and she followed the steps. She learned fast and made black and orange colored ribbon. Although she imitated the process of Jenny, Emma choose different color fabric, which makes distinguish from Jenny's.

All children showed non-trouble during the session. Jenny stated how joyful it is to manipulate fabric and clay together. Furthermore, she also stated that it would have been boring if they had made a cup again it the session.

Session Seven for 3D Group (making a cup)

In this session, the researcher asked the children to make a cake using coiling technique. The process to roll the clay and make coils were same as previous sessions when making a cup, however, the participants should narrow the diameter of the cylinder, and finally should unite the top of the body. The researcher demonstrated how to narrow down the diameter of the cylinder without collapse. The children were asked to (1) make the bottom and pile up clay coils on the edge of the bottom, (2) narrow down the diameter of the body and close the top, (3) decorate the surface of cake and give meanings to the cake.

Chris made the clay coil faster and more constant thickness than other days. He started to roll up the coils from the center of the bottom. Since the direction was based on the cup making, other children made inside of the cake empty, but he filled the cake with same thickness of clay coils. He explained that the cake is not empty, but filled with bread, and he did well.

When Jenny heard about the direction, she stated that she will make a strawberry cake for Emma because Emma's birthday was coming. She explained that her cake is made by specific ingredient that does not cause obesity. She stated that "I like clay. I can make anything with this [clay]. I feel I don't need to feel pressure for perfect work because I can make it again when I make a mistake". After the session is finished, she gave her cake to Emma whose birthday is around the corner.

As the day was two days before Emma's birthday, Emma said she want to make a cake for herself. She displayed even thickness of clay coils while saying that "Look at me. Now I am better than you." However, when she narrowed down the width of the cylinder, she said she may cannot complete the process by herself. Since she tried and failed already, the researcher made some structures inside to stand the weight of the clay. Then she could easily piled up the coils on it. She decorated with bear, house, human, wings, and a stick on the surface of the semi-spherical shaped clay. She celebrated herself and other participants joined and sang a birthday song together for her.

While other participants had trouble in narrowing down the top with even coils, Brian was working with flatted clay coils. He explained that he could pile up the coils by making the coils flatly, which reduce the possibility to pull down the clay body. As he explained, he did not fail during the time and did not spend much time on it.

Session Eight for 3D Group (making a cup)

In this session, the children were asked to make bigger cups than their previous works. The children were encouraged to make the cups by themselves without hand-on help from the researcher if possible. However, requesting help and question were allowed at any time if

they need. The researcher asked participants to make even and straight body shape as possible as they can.

When Brandon was given the task, he said he will not make a cup in a same way as he did. He stated that he will make small pieces of clay and he will assemble them as he piled up coils. He started to make plenty of flat and small piece of clay. He explained that since nobody makes the cup like him, his cup would be unique in the classroom. He trimmed out the surface of the cup carefully and did finished the cup by himself. He stated that "I didn't know that I can make this [a cup] without your help before you asked us to make by ourselves."

At first, Jenny asked to make heart shape to the researcher, but she did by herself after watching the researcher's demonstration. She said making a cup is easy task for her and she said "I am a great potter in my age."

Emma's coils were much evener than previous sessions. She asked if her coils becomes better than before and if her work is better than others. She maintained same width of diameter of the cylinder well, and attached similar thickness of handle on the body. Brian finished the work quickly than previous sessions as another participants. He also stated that now making a cups is easy task for him.

Session Nine for 3D Group (making a house)

In this session, the children were asked to make houses. The skills for making the body of the house was same as previous sessions when they made cups, but they added roofs and other decorations on the body of the houses. The researcher explained to participants that they can make any kind of house they want. The researcher asked that (1) decide which

house they want to make, (2) build a body of house with coiling technique, (3) make a roof for the house, and (4) decorate the house with clay.

When the task was given, Brandon said that he can make a brick house with clay. He explained that the cup that he made at the previous session looked like brick, so that he can make use the same technique to create a brick house. He made small pieces of clay and piled up them on the edge of the bottom as previous session, but it was faster than before. After he made a body of the house, he watched how Jenny place her roof on the wall. Since his roof is one piece and Jenny's roof was two pieces, the process was slightly different, and he needed additional information to build it. He stated that "I could not make a cup in the past, but now I can even make a house. Now making cup is too easy."

Jenny said she guesses she can make a house very well. She explained that she will make square-shaped bottom as real house, and will build realistic roof on the top. She made even thickness of coils and piled them up on the edge of the bottom. Then she asked how she can place the roof on the body. The researcher gave information to erect roof by placing triangle-shaped wall. She followed the researcher's direction, but it was not easy to place the roof on the wall. She finally put the roof on the body of the house and stated that the house is the best among her works.

Session Ten for 3D group

In this sessions, the participants were asked to make a cup. The researcher explained that they will make a cup by themselves without the researcher's help. Since it was the last session of art therapy, the researcher encouraged them to make an every effort what they developed during previous sessions.

Brandon tried to trim the surface of the cup body, and attached some decoration on it. Chris observed it and imitated it. Chris also tried to make the surface of the cup body by rubbing it with his finger. Brandon stated that "You don't need to say we have to make this cup by ourselves. Actually I really don't need your help."

Emma stated "Because this is the last time of this clay class, I will do my best to make a long and beautiful snake." As she mentioned, she made even thickness of coil. When the researcher told her how her technique was improved, she answered she knows it as well and she is proud of her. Brian also stated that his cup is getting better and better. Since there was no third hand help in this session, Brian said "I will say to my mom that I made this by myself."

APPENDIX J

TEACHER INTERVIEW

Pre Teacher Interview

The first question was about 2D group with open question interview. The researcher asked the teacher to explain about the participants' academic attitude, peer relationship, and behavioral problems without no form. When she was asked about the class atmosphere, the first she mentioned was about Kathy, a seven-year-old 1st year student with Down syndrome. Because of her aggressive and destructive behavior, other students were damaged by her. The teacher explained that "Kathy sometimes urinates in the classroom, yells out during the class, and throw others' stuffs." and "She does not follow the rules in classroom, and easily cry when she is warned by me" The teacher added that when she was given a task, she does not try to solve it, but refuse to solve it even it is simple task such as counting numbers.

About Sera,the teacher explained that Sera is too talkative during classes and almost conversation is meaningless; she asked too much questions that is unrelated to the class subject such as "where can I buy a puppy?" or "Why cat is so cut." She asked "What time is it now" every minute if there is no restriction on it.; she easily forgive up her given task and her favorite answer is "I don't know." The teacher added that Sera is always blaming other classmates when she was scolded by the teacher.

About Liam, the teacher stated that it is difficult to communicate with him because of his autistic disorder; he has low concentration on class, and when he is given the task, his first answer is always "I will not do that" She said that "Liam is so much passive in his everyday life, and always waits until I order him what to do."

About Jack, the teacher explained that since his mother has refused his existence, he shows

a symptom of reactive attachment disorder; he tried to politely answer teacher's question or request, but does not perform as he answered; he is distracted most of his time in school and has feat to give a challenge. The teacher explained that "He shows very passive attitude toward his everyday life. He always talk with a low voice, and when I ask him "pardon?" he does not repeat it. When I teach him new solving method during math class and ask "do you want to try this question?" he does not answer, but shakes his head."

About Becky, the teacher explained that she has serious learning disorder. The teacher said that "Becky is pugnacious and frequently has a fight with her classmates. She is usually the winner." The teacher also explained that since she has low focus on her study, making her hold a book is a touch task; she blames other classmates when some problem occurs, and does not acknowledges it even though it was her fault.

In sequence, the teacher explained about 3D group. About Brandon, the teacher explained that he is the smartest student in the special classes in the school. Even though he is diagnosed as autism and intellectual disabilities, his symptom is minor compared to other special children. The teacher explained that "Brandon can answer exactly what I am asking, and understand what he heard. Because he has the highest test scores in the class, it seems he has relatively high self-esteem than others." The teacher added that "Despite Brandon's relatively high self-esteem, he hesitates to challenge a new task because he wants to do what he is doing well. He is well recognizing his disabilities and symptom, which makes him compare himself with normally developed children."

About Chris, the teacher said that he is a typical autism children. The teacher explained that "Chris has trouble communicating with others and shows strong stereotyped behavior." The teacher added that when Chris thinks he does not want to perform a task, he never try to perform

it, and he does not attempt to do something what he thinks is difficult for him.

About Jenny, The teacher stated that Jenny has learning disabilities, but her most obstacle is visual impairment; she wears thick glasses, but she should bring things close to her eyes to see them; she always try to show positive attitude in school, but sometimes show severely depressive mode; she smiles well and like to say “I am fine” and “I am okay” but the teacher regards it as one kind of defense mechanism, she sometimes says “My mom does not like to live with me anymore” “Maybe my mom tried to care me when I was young, but I am grown up and I think she wants me to die.” In academic course, she is easily satisfied with her work even though it is not completed; when she is given a difficult task, she is not afraid of challenge to it, and does not hesitate to forgive it up. The teacher added “when I praise her, she tries to find another reason that support her success, like “that’s because you helped me a lot,” or “I think it was easier than before”

About Emma, the teacher mentioned that Emma looks like she does not have any disabilities because she pronounce clearly, and her behavior and eye contact does not show any different aspect from normally developed children. However, once talking with her for a while, one can find out that her linguistic and logical structure are broken and she drifts from one subject to another quickly. She has moderate intellectual disabilities and her parents want her to attend in normal middle school, which the teacher does not agree with. She tends to forget things easily and when she is given a task, almost her first answer is “I cannot do it” or “I don't know” Emma tries to focus on her academic tasks, but easily distracted. Emma tends to attribute her fault to other classmates, and when teachers appraise her behaviors, she usually does not answer it.

About Brian, the teacher explained that Brian likes to tease other classmates in special

class. She added that he is the tallest in his class and is a boy of large build. The teacher stated that “Brian smashes his male classmates, and prods or pinches his female classmates. It is a big problem because usually child does not like it.” Even though he is physically big, he refuses teacher's request to help her in the reason that he is tired. While other children usually say “I can't do it” when they take some tasks, he says “I will not do it” or “ I don't want to do it” when he faces some trouble, he does not try to solve by himself, but say “help me, teacher” When he is given a task, he tries to solve it for a second, and easily give it up. Brian says “I did not do it. Someone did it” when some trouble happened in class.

Post Teacher Interview

After the art therapy session is over, the teacher was asked to participate in the interview again. The question was same as the previous interview; the participants’ academic attitude, peer relationship, and behavioral problems without no form.

As previous interview, the teacher explained about 2D group first. About Sera, the teacher stated that she is still talkative and interrupts class with unrelated questions. -However, when she was warned by teacher for the behaviors, she tries to accept the scolding with saying “I am sorry.” She added “Of course, she does not say like that always.” Furthermore, when the teacher asked children in class that “who will solve this problem?” Sera sometimes raises her hand and says “Me!” The teacher feels that Sera’s class participation is increased.

About Kathy, the teacher explained that was changed in class a lot, and her aggressive behavior was decreased than before. The teacher stated that “Since it was the 1st year of her school life, it might have been difficult for her to follow the class’ rule and to get along with other classmates. I think the change of her behavior is not only because of art therapy, but also her normal development.” Kathy decrease the frequency to throw stuffs, yell out, and urinate

during classes. She sometimes actively accepts to solve a given task.

About Liam, the teacher stated that his behaviors have not been changed sensibly, but slightly changed in that Liam reduces the frequency to answer "I will not do that" when he was given a task. The teacher explained that "children with autism are difficult to recognize their internal change because they hardly express about them. Of course, he has never shown an active attitude to participate in some activities, but I found that he reduced the frequency to reject his task unconditionally."

About Jack, the teacher said "I found Jack's voice becomes slightly loud than before, but could not find a noticeable change. I could not find another change in his attitude"

About Becky, the teacher stated that Becky also shows a tendency to enjoy art class in regular school schedule. Since it is still difficult for her to hold a book during class because of her low attention span, the teacher said that "Art class makes her to sit down on the chair even though you are not there. It makes her to train to focus on certain subject, and we appreciate it."

In the second place, the teacher explained about 3D group. About Brandon, the teacher said that he shows an attitude to solve his given task when he faces barriers. The teacher stated that one day, when Brandon gave a wrong answer in math class, she said "alright, I will let you know the answer" but he answered "wait, I'm almost close to the answer. Let me give a time." The teacher accounted that she is not sure it is the effect of art therapy or not, but his attitude to solve a problem, which he is not good at, was changed positively. The teacher stated that "it was surprising that Brandon said that he wants to major in art when he proceed to university."

About Chris, the teacher explained that "He has always refused what he think is difficult for him, but I found he tried to attempt what he could not solve during Korean language class. It was only twice and one might say it is not a big change, but for me, it was surprised."

About Jenny, the teacher stated that she talks about clay therapy class frequently during other classes. The teacher said “Jenny still tries to show her positive aspect to others, but sometimes she says “What if I try it again?” which she does not like to say. The teacher said that “Jenny stated that you praised her during the class and she thinks she did really well, too. When I praise her during classes, she tried to find another reasons at first, but nowadays, she sometimes accept my praise and explained what she did well. She enjoyed the art therapy research and feels unhappy that the class was finished after all.”

About Emma, the teacher said that when Emma is praised by teachers for her behaviors, she sometimes answered “the clay teacher also praised me like that.” The teacher said it is different from her previous attitude that does not answer for teacher’s praise. The teacher also stated that at first, she does not believe that Emma’s artworks (burned cups) were not made by Emma; she thought the therapist entirely helped Emma during the art therapy sessions. The teacher said “Emma sometimes brought her ceramic cup that she made and boasted of them to me. Since Emma did not show concentration during other classes, so I doubt the result of artwork is not her own work because I thought she cannot make such a great work.”

About Brian, the teacher explained that “Brian has looked forward to seeing you every week. I’ve never seen his passion to take a class, even he has not enjoyed art class in the regular academic schedule. Sometimes he asked “when the clay teacher comes?” even it is not a day for art therapy. The teacher said Brian stated that “I am a strong [p10] who makes clay cup very well.” “I can’t wait for see my cup from the kiln. I made a nice cup. I will show you when it comes.” The teacher said that Brian tended to avoid to talk with teacher in person because he is a trouble maker who usually get a scolding from teachers. However, Brian sometimes brought his cups and showed them to teachers to boast it. The teacher also stated that “when I tell him “try to

do I yourself as you did during clay class, he slightly tries to solve a question during classes."

Lastly, the teacher explained that "The changes what I observed the children for 10 weeks might be not a big one. They did what I said once or three times, or just little bit increased its frequency. However, I think it is a big step for them. I realized that some additional curriculum in art class is necessary, and claywork seems to be essential for them. I have not used clay during the art class because I don't know how to handle it and was afraid of clearance work. However, through this research, I found that more children, who are participating in clay-focused art therapy, are waiting for the time you come than other children, and they want to continue the claywork even the research is over. I also found that the second group children show more lengthened concentration during classes than first group."

APPENDIX K

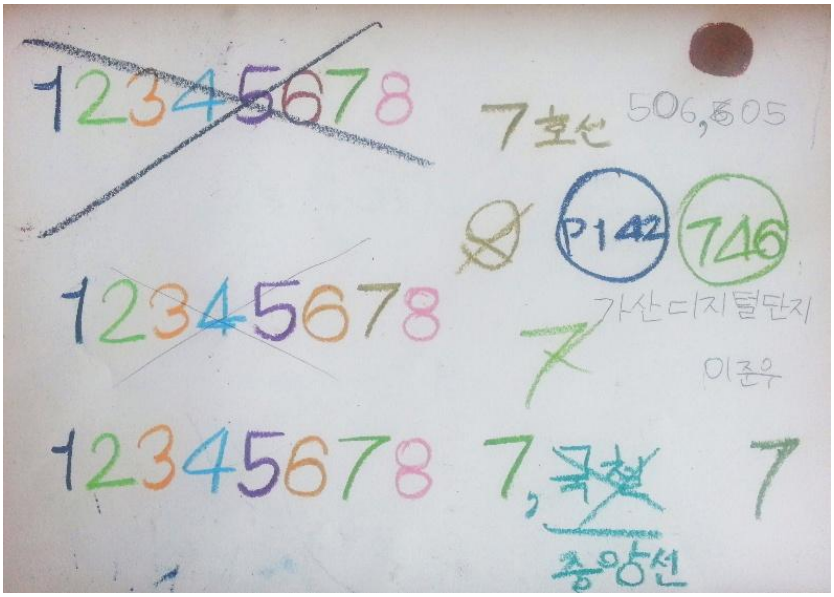
ART WORK

Artwork of 2D Group

Session1 (Free drawing)

Sera

Kathy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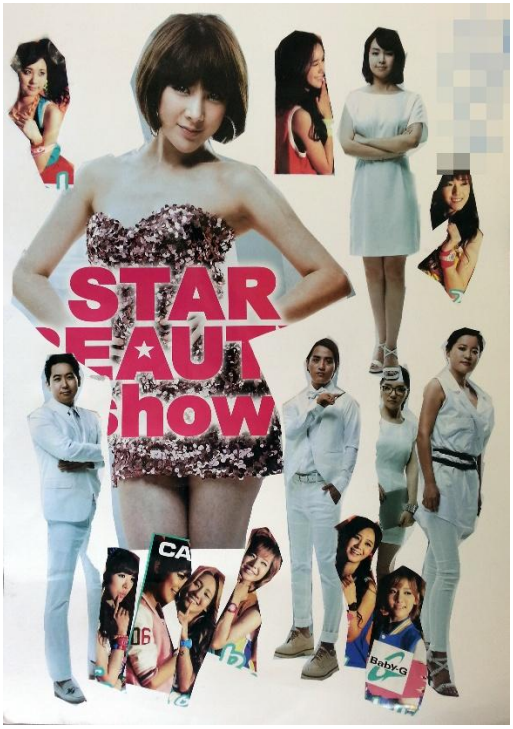
Liam

Jack

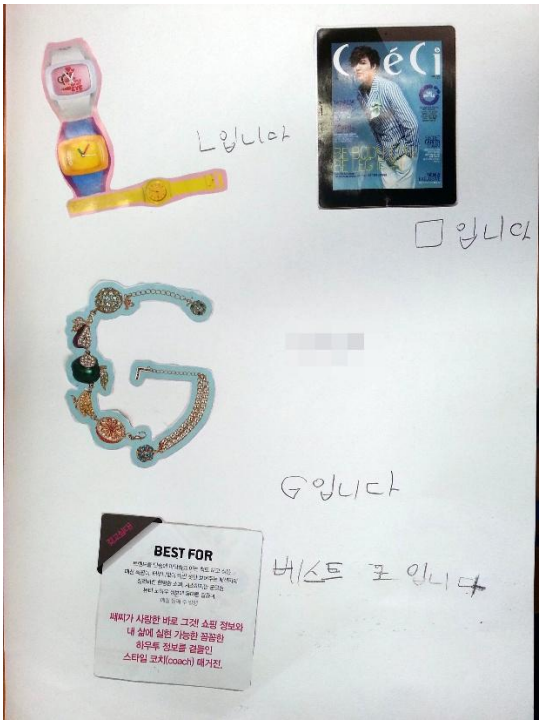
Becky

Session 2 (Collage)



Sera

Kathy



Liam

Jack

Becky

Session 3 (Mandala)

Sera

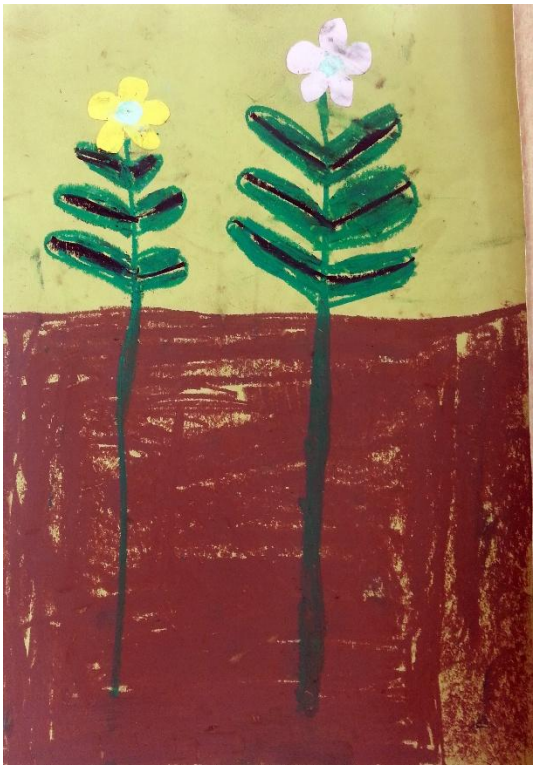
Kathy

Liam

Jack

Becky

Session 4 (Creating Flower Pot)



Sera

Kathy

Liam

Jack

Becky

Session 5 (Hand Stamping)

Sera

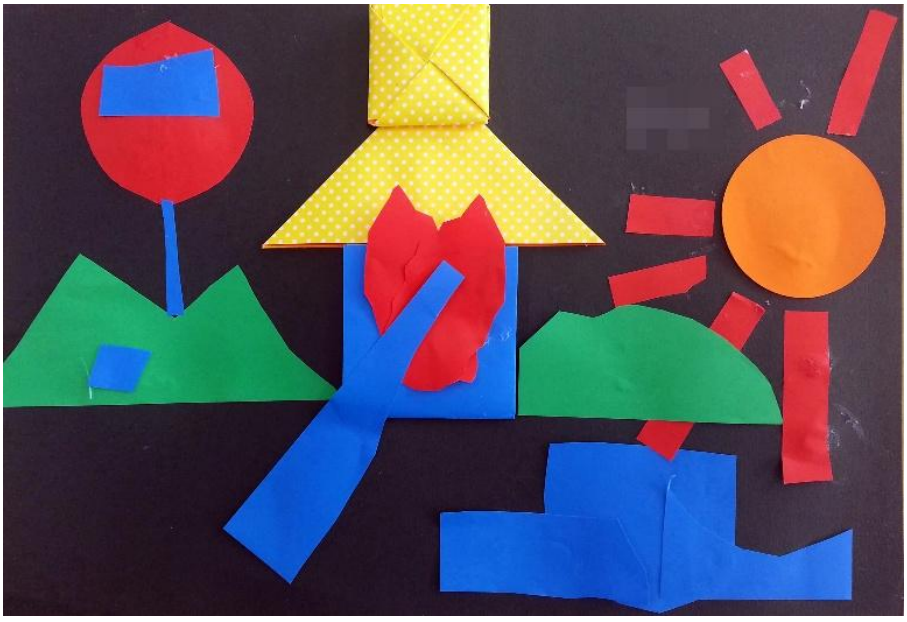
Kathy

Liam

Jack

Becky

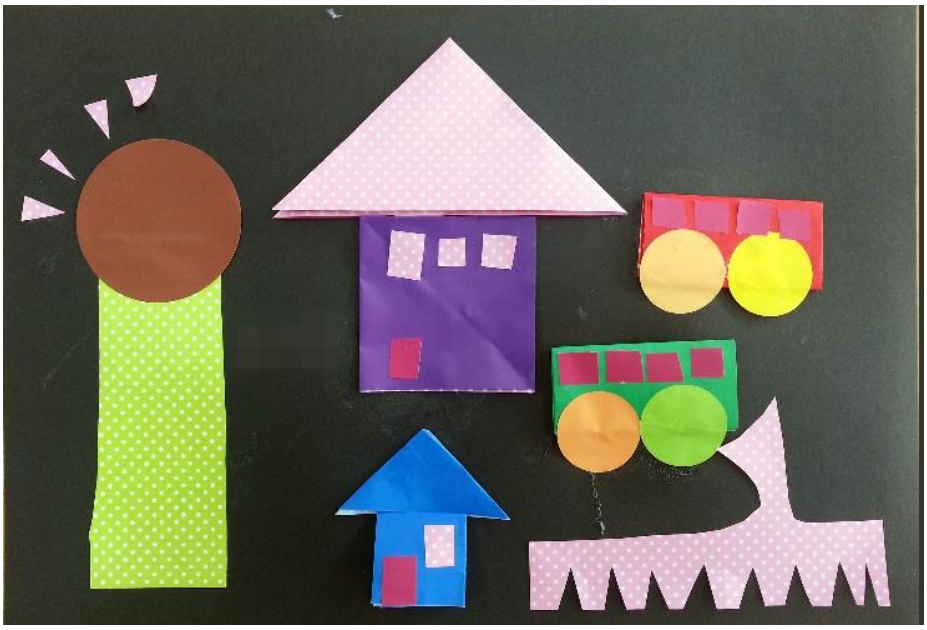
Session 6 (From the Basic Shapes)



Sera

Kathy

Liam



Jack

Becky

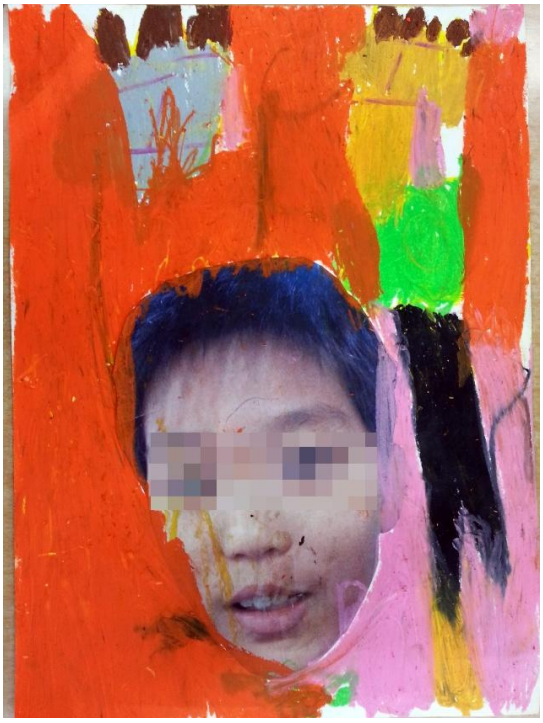
Session 7 (Self Portrait)

Sera

Kathy

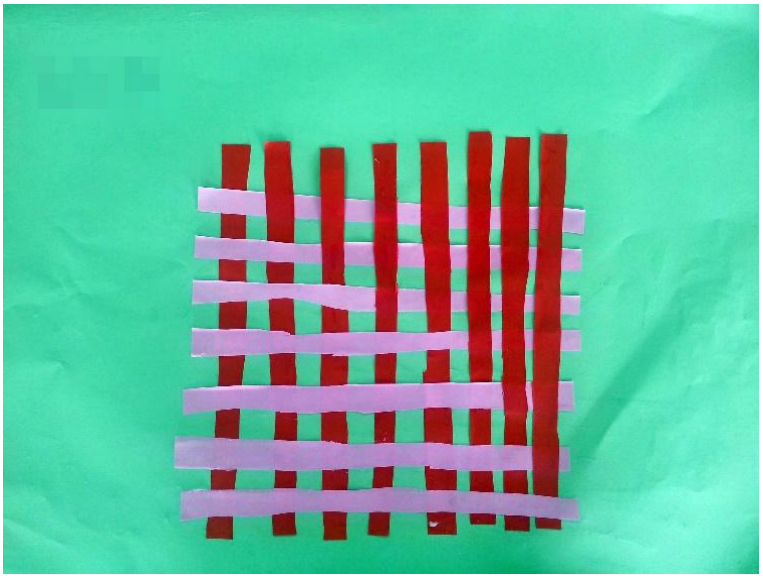
Becky

Liam



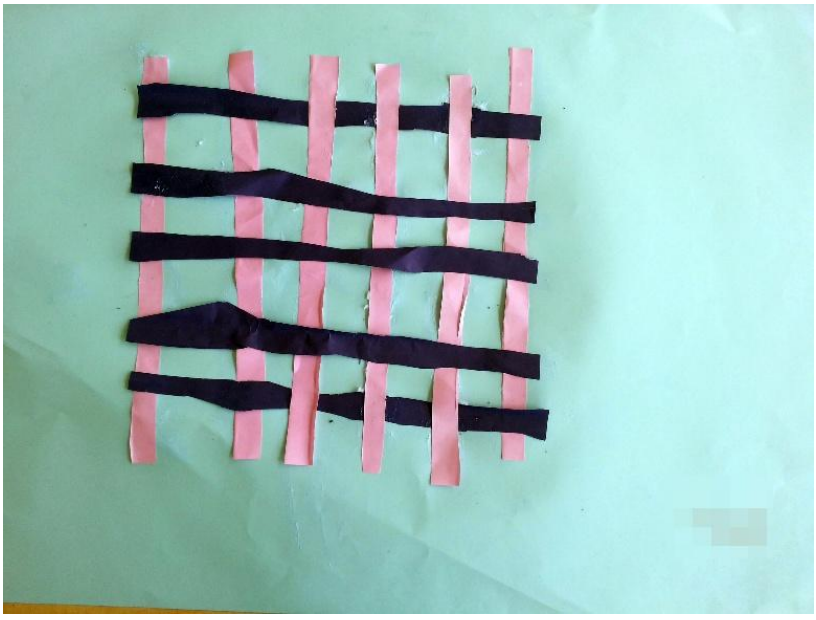
Jack

Session 8 (Making Latticed Pattern)



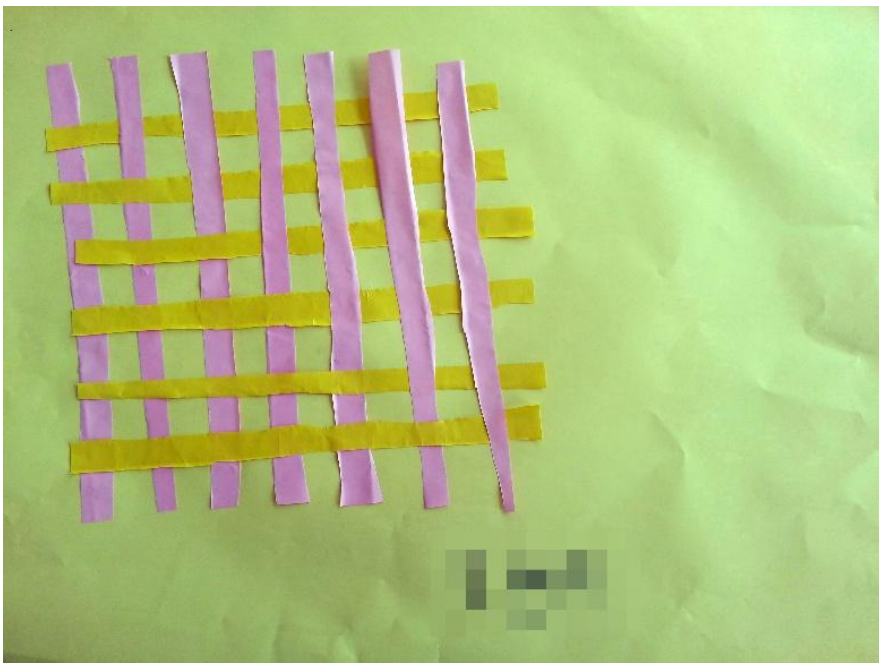
Sera

Kathy



Liam

Jack



Becky

Session 9 (Body Drawing)

Group work (Sera, Kathy Liam, Jack, Becky)

Session 10 (Cooperative Art Making)

Group work (Sera, Kathy Liam, Jack, Becky)

Art work of 3D Group

Session 1 (Free Work)

Sera

Kathy

Liam

Jack

Becky

Session 2 (Making a Cup- introducing basic skills)

Brandon

Chris

Jenny

Emma

Brian

Session 3 (Creating one's own world)

Brandon

Chris

Jenny

Emma

Brian

Session 4 (Making a cup- attaching handles)

Brandon

Chris

Jenny

Emma

Brian

Session 5 (Making a Cup with Lid)

Brandon

Chris

Jenny

Emma

Brian

Session 6 (Making a Clay Puppet)

Brandon

Chris

Jenny

Emma

Brian

Session 7 (Making a cake)

Brandon

Chris

Jenny

Emma

Brian

Session 8 (Making a cup)

Brandon

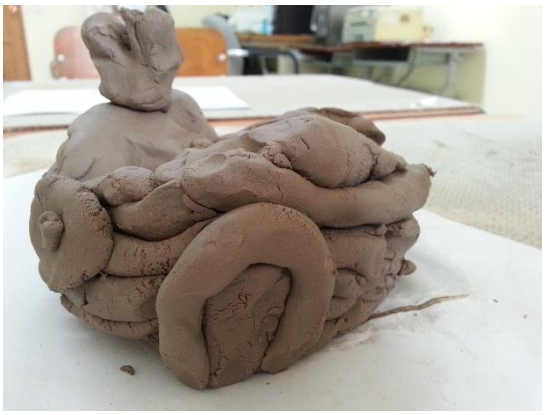
Chris

Jenny

Emma

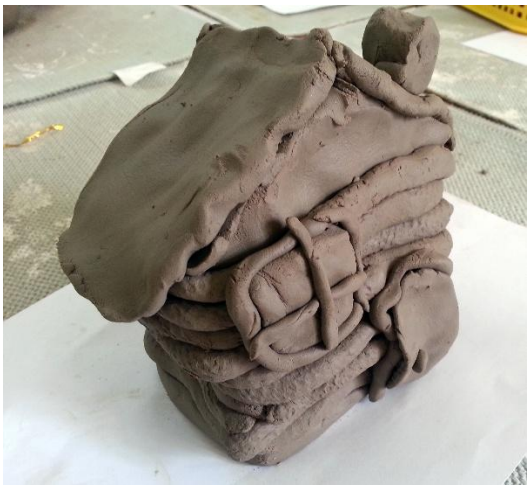
Brian

Session 9 (Making a House)



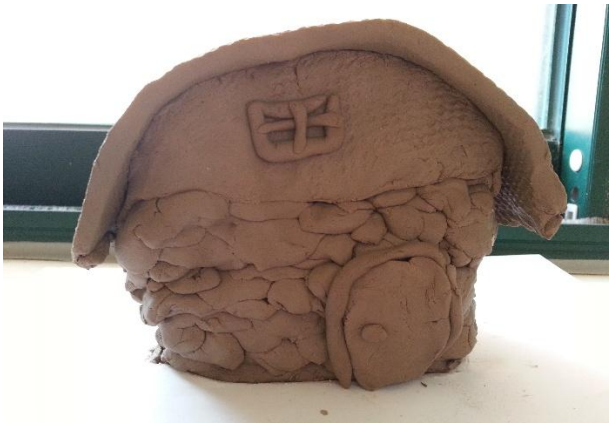
Brandon

Chris



Jenny

Emma



Brian

Session 10 (Making a cup)

Brandon

Chris

Jenny

Emma

Brian

REFERENCES

American Association on Intellectual and Developmental Disabilities (2011*). Intellectual disability: definition, classification, and systems of supports (11th edition).* Washington D.C.: American Association on Intellectual and Developmental Disabilities.

Ames, C. (1978). Children's achievement attributions and self-reinforcement: Effects of self-concept and competitive reward structure. *Journal or Educational Psychology*, *70*, 345-355.

Anderson, F. E. (1996). *Art-centered education and therapy for children with disabilities*. Springfield, IL: Charles C Thomas Pub Ltd.

Anderson, F. E. (1995). Catharsis and empowerment through group claywork with incest survivors. *The Arts in Psychotherapy, 22*, 413-427.

Art monthly (2007). *The Korea art terminology dictionary*. Seoul: Art monthly.

Attanasio, M. E. (2003). *Relationship between locus of control, residential setting, and employment status within a sample of adults with mental retardation*. New York: Pace University.

Avetikova, L. (2008). Healing through clay: A case study of a child witness of domestic violence. In S. L. Brooke (Ed.). *The use of the creative therapies with survivors of domestic violenc*e (pp. 46-63). Springfield, IL: Charles C Thomas.

Bandura, M., & Dweck, C. S. (1985). *The relationship of conceptions of intelligence and achievement goals to achievement-related cognition, affect and behavior.* Manuscript submitted for publication.

Banks, S. (1993). The effects of directed art activities on the behavior of young children with disabilities: a multi-element baseline analysis. *Art Therapy: Journal of the American Art Therapy,* 10(4), 235-240.

Bankson, M .Z.(2008). *The Soulwork of Clay: A hands-on approach to spirituality*. Woodstok: Skylight Paths Publishing.

Barnett, M. A., & Kaiser, D. L. (1977). The relationship between intellectual-achievement responsibility attributions and performance. *Paper Presented at the Annual Meeting of the Mideastern Psychological Association*, Chicago: IL.

Bar-Tal, D., & Bar-Zohr, Y. (1977). The relationships between perception in locus of control and academic achievement. *Contemporary Educational Psychology*, *2*, 181-199.

Battle, E. S., & Rotter, J. B. (1963). Children's Feelings of Personal Control as Related to Social Class and Ethnic Group. *Journal of Personality, 31*, 482–90.

Beak, Y. & Choi, W. (1997). The factor of stress in rural high school students. *Journal of the Korean Home Economics Association, 34*(1), 33-47.

Bendell, D., Tollefson, N., & Fine, M. (1980). Interaction of locus of control orientation and the performance of learning disabled adolescents. *Journal of Learning Disabilities, 13*, 32-35.

Bentensky, M. (1973). *Self discovery through self-expression: Use of art in psychotherapy with children and adolescents.* Illinois: Springfield.

Bernier, M., & O'Hare, J. (Eds.). (2005). *Puppetry in education and therapy: Unlocking doors to the mind and heart.* Bloomington, IN: Authorhouse.

Bialer, I. (1961). Conceptualization of success and failure in mentally retarded and normal children. *Journal of Personality, 29*(3), 303-320.

Bloom, B. S. (1980). *All about children learning.* New York: McGraw-Hill.

Boersma, F. J., Chapman, J. W., & Maguire, T. O. (1979). *Technical data on the student's perception of ability scale*. Edmonton: University of Alberta.

Borich, G. D., & Paver, S W. (1974). Convergent and discriminant validity of the locus of control construct. *Report Research*; Tests/Questionnaires.

Borich, G. D., & Paver, S. W. (1974). Convergent and discriminant validity of the Locus of Control construct. *Report-Research; Test/Questionnaires.*

Breet, L., Myburgh, C.,& Poggenpoel, M. (2010). The relationship between the perception of own Locus of Control and aggression in adolescent boys. *South African Journal of Education, 30*, 511-526.

Bruner, J. S. (1964). The course of cognitive growth. *American Psychology, 19*(1), 1-15.

Bryan, T. H., & Pearl, R. (1979). Self-concpets and locus of control of learning disabled children. *Journal of Clinical Psychology, 8*, 223-226.

Buchalter, S. I. (2004). *A practical art therapy*. London: Jessica Kingsley.

Bullis, M., & Cheney, D. (1999). Vocational and transition interventions for adolescents and young adults with emotional or behavioral disorders. *Focus on Exceptional Children,* 31, 1-24.

Burgess, C., & Hamblett, M. L. (1994). Application of the Rotter scale of internal-external Locus of Control to determine the difference between smokers, non-smokers and ex-smokers in their general Locus of Control. *Journal of Advanced Nursing, 19*, 699-704.

Butterfield, C. E. (1964). Locus of control, test anxiety, reactions to frustration, and achievement attitudes. *Journal of Personality*, *32*(3), 355-370.

Burns, J. (1985). Attribution of causality for successful performance by kindergarten children. *Proceedings from the Annual Meeting of the Eastern Psychological Association*, Baltimore: MD .

Calhoun, L. G., Johnson, R. E., & Boardman, W. K. (1975). The effect of severity, consistency, and typicalness information on clinician's casual attributions. *Journal of Clinical Psychology, 31*(4), 600-604.

Case, C., & Dalley, T. (1992). *The hankbook of art therapy*. London: Routledge.

Catterall, J.S. (2012). *The art and achievement in at-risk youth: Finding from four longitudinal studies*. Washington: National endowment for the Arts.

Cavaiola, A. A., & Strohmetz, D. B. (2010). Perception of risk for subsequent drinking and driving related offenses and Locus of Control among first-time DUI offenders. *Alcoholism Treatment Quarterly, 28*, 52-62.

Champman, J. W., & Boersma, J. F. (1979). Learning disabilities, locus of control, and mother attitude. *Journal of Educational Psychology, 71*(2), 250-258.

Chandler, T. A., Shama, D. D., Wolf, F. M, &Planchard, S. M. (1981). Multiattributional causality: A five cross national samples study. *Journal of Cross-Cultural Psychology, 12*, 207-221.

Chartier, G. M., Landkford, A. D. & Ainley, C. (1976). The Stanford preschool internal-external scale: extensions to kindergarteners. *Journal of Personality Assessment, 40*, 431-435.

Cheng, C., Cheung, S., Chio, J., & Chan, M. (2013). Cultural meaning of perceived control: A meta-analysis of locus of control and psychological symptoms across 18 cultural regions. *Psychological Bulletin, 139(1)*, 152-188.

Choi, J.(2000*). Education for special needs children*. Seoul: Education & Science.

Choi, M. (2001). *The analysis of claywork influence on physical expression of special need children*. Unpublished master's thesis. Sookmyung University, Seoul.

Chevallier, C., Kohls, G., Troiani, V., Brodkin, E. S., & Schultz, R. T. (2012). The social motivation theory of autism. *Trends in Cognitive Sciences, 16*(4), 231-239.

Choi, S. (1998). *Meaning of children's disorder in learning and significance of art therapy*. Unpublished master's thesis. Sookmyung Womens' university. Seoul, South Korea.

Church, R. P., Lewis, M. E., & Batshaw, M. L. (1997). Learning disabilities. In M. L. Batshaw (Ed.), *Children with disabilities* (pp. 471-497). Baltimore, MD: Brooks.

Collier, R. G., Jacobson, M. G., & Stahl, S. A. (1987). Locus of Control measurement of gifted and nongifted children. Roeper Review, *9*, 196-200.

Cook, T. D. & Cambell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston: Houghton Mifflin Company.

Crandall, V. C., Katkovski, W., & Crandall, V. J. (1965). Children's belief in their won control of reinforcements in intellectual-academic achievement situation. *Child Development, 36,* 91-99.

Cunnigham, T., & Berberian, V. (1976). Sex differences in the relationship of self concept to locus of control in children. Personality *and Social Psychology Bulletin, 2*, 277-281.

Curtis, R. C., & Schildhuas, J. (1980). Children's attributions to self and situation. *Journal of Social Psychology, 110*, 109-115.

Dalley, T., (2002). Art *as therapy: An introduction to the use of art as a therapeutic technique*. London: Routledge.

Deiner, C. I., & Dweck, C. S. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. *Journal of Personality and Social* Psychology, *36*, 940-952.

Deiner, C. I., & Dweck, C. S. (1980). Ana analysis of learned helplessness II: The processing of success. *Journal of Personality and Social Psychology*, *39*, 940-685.

Dixon, D. N. (1976). Dimensionality of three adult, objective locus of control scales. *Journal of Personality Assessment, 40,* 310-319.

Doll, E. (1941). The essentials of an inclusive concept of mental deficiency. *American Journal of Mental Deficiency,46*, 214-219.

Doll, R. (1994). Austin Bradford Hill. *Biographical memoirs of fellows of the royal society*, *40*, 126-128.

Dubowski, J., & Evans, K. (2001). *Art therapy with children on the autistic spectrum: Beyond words*. London: Jessica Kingsley Pub.

Ducette, J., & Wolk, S. (1972). Locus of control and extreme behavior. *Journal of Consulting and Clinical Psychology, 29*, 253-258.

Dunn-Snow, P., & Joy-Smellie, S. (2000). Teaching art therapy techniques: Mask-making, a case in point. *Art Therapy: Journal of the American Art Therapy Association, 17*(2), 125-131.

Durst, M., & Schaeffer, E. M. (1987). Using multimethod research techniques to study student culture. *Journal of National Association of Women Deans, Administrators, and Counselors, 51(1)*, 22-26.

Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, *31*, 674-685.

Dweck, C. S. (2006). Mindset: The new psychology of success. New York: Ballanitne Books.

Earles-Vollrath, T. L., Cook, K. T., Robbins, L., & Ben-Arieh, J.(2008). Instructional Strategies To Facilitate Successful Learning. (In R. L. Simpson & B. S. Myles Ed.). *Educating children and youth with autism* Ed.). (pp.97-190). Austim, TX: Pro-ed.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*(1), 5-12.

Emery, M. J. (2004). Art therapy as an intervention for autism. *Art Therapy: Journal of the American Art Therapy Association, 21*(3), 143-147.

Eisner, E. W. (1998). Does experience in the arts boost academic achievement? *Art Education, 51*(1), 7-15.

Epstein, S. (2003). Cognitive-experiential self-theory of personality. In T. Millon & M. J. Lerner (Eds), *Comprehensive Handbook of Psychology, Volume 5: Personality and Social Psychology* (pp. 159-184). Hoboken, NJ: Wiley & Sons.

Erickson, E. H. (1963). *Youth: Change and challenge*. New York: Basic books

Estes, A., Rivera, V., Bryan, M., Cali, P., & Dawson, G. (2011). Discrepancies between academic achievement and intellectual ability in higher-functioning school-aged children with autism spectrum disorder. *Journal of Autism and Developmental Disorder, 41*, 1044-1052.

Farrel-Kirk, R. (2001). Secrets, symbols, synthesis and safety: The role of boxes in art therapy. *American Journal of Art Therapy, 39*(3), 88-92.

Fessler, M. A., Rosenberg, M. S., & Rosenberg, L. A. (1991). Concomitant learning disabilities and learning problems among students with behavioral/emotional disorders: A conceptual model. *Behavioral Disorders, 16*, 97-106.

Findley, J. M., & Cooper, M. H. (1983). Locus of control and academic achievement: A literature review. *Journal of Personality and Social Psychology, 44*(2), 419-427.

Fiori, K. L., Brown, E. E., Cortina, K. S., & Antonucci, T. C. (2007). Locus of control as a mediator of the relationship between religiosity and life satisfaction: Age, race, and gender differences. *Mental Health, Religion & Culture, 9*(3), 239-263.

Forseth, S. (1980). *Arts activities, attitudes, and achievement in elementary mathematics. Studies in Art Education, 21*(2), 22-27.

Fouse, B. & Wheeler, M. (1997). *A treasure chest of behavioral strategies for individual with autism.* Kent: Future Horizon.

Fowler, A. E., Gelman, R., & Gleitman, L. R. (1994). The course of language learning in children with Down syndrom: Longitudinal and language level comparisons with young normally developing children. In H. Tager-Flusberg (Ed.). *Constrains on language acquisition: Studies of atypical children* (pp. 99-140). Hillsdale, NJ: Erlbaum.

Frank, L. (1957). Tactile communication, *Genetic Psychology Monogranphs*, 56, 209-255.

Freilich, R., & Shechtman, Z. (2010). The contribution of art therapy to the social, emotional, and academic adjustment of children with learning disabilities. *The Arts in Psychotherapy, 36*(2), 97-105.

Fristad, M. A., Topolosky, S., Weller, E. B., & Weller, R. A. (1992). Depression and learning disabilities in children. *Journal or Affective Disorders, 26*, 53-58.

Furnham, A. (1987). A content and correlational analysis of seven locus of control scale. *Current Psychology, 6*(3), 244-255.

Furnham, A., & Steele, H. (1993). Measures of Locus of Control: A critique of children's, health and work-related locus of control questionnaires. *British Journal of Psychology,* 84, 443-79.

Gantt, L. M. (2011). The formal elements art therapy scale: a measurement system for global variables in art. *Art Therapy: Journal of the American Art Therapy Association, 18*(1), 50-55.

Gathercole, S., & Pickering, S. (2003). Research section: working memory deficits in children with special educational needs. *British Journal of Special Education, 28*(2), 89-97.

Gilmor, T. M. (1978). Locus of Control as a mediator of adaptive behavior in children and adolescents. Canadian Psychological Review: Psychologie Canadienne, 19(1), 1-25.

Gilmor, T. M., & Reid, D. W. (1978). Locus of Control, prediction, and performance on University examinations. *Journal of Consulting and Clinical Psychology, 84*, 443-479.

Gnepp, J., & Chilamkurti, C. (1988). Children's use of personality attributions to predict other people's emotional behavioral reactions. *Child Development, 59*, 743-754.

Goals 2000 Arts Education Partnership (2010, February, 18). *The arts and children: a success story* [video file]. Retrieved from http://www.youtube.com/watch?v=E6Rlc9Cw66w

Golomb, C. (1992). *The children's creation of pictorial world*. Berkeley, CA: University of California Press.

Gore, P. M., & Rotter, J. B. (1963). A personality correlate of social action. *Journal of Personality, 31*(1), 58-64.

Gorsuch, R. L., Henighan, R. P. / Barnard, C. (1972). Locus of Control: An example of dangers in using children's scales with children. *Child Development, 43*, 579-590.

Goryl, F. (1995). 'Research findings: Art therapists preferences utilizing artistic media'. *Preceedings of the American Art Therapy Association 27th Annual conference*, San Diego, CA.

Greenspan, S. I., Wider, S., & Simons, R. (1998). *The child with special needs: Encouraging intellectual and emotional growth*. New York: Perseus Books.

Gruen, E. G., Korten, R. J.Baum, F. J. (1974). Group measure of locus of control. *Developmental Psychology*, 10(5), 683-686.

Guttentag, M. (1972). The relationship between inner versus outer Locus of Control and achievement in Black middle school children (5th through 8th grade): A psychometric and validity study. *Report to the Carnegie Cooperation.*

Halpert, R., & Hill, R. (2011). *The locus of control construct's various means of measurement: A researcher's guide to some of the more commonly used locus of control scales.* Beach Haven, NJ: WILL TO POWER PRESS.

Halpin, B. M., & Ottinger, D. R. (1981). Children's Locus of Control scales: A reappraisal of reliability characteristics. *Paper presented at the Annual Meeting of the Midwestern Psychological Association*, Detroit: MI.

Hamilton, R. J., & Akhter, S. (2002). Psychometric properties of the multidimensional-multiattributional causality scale. *Educational and Psychological Measurement, 62*, 802-817.

Han, K. (1997). *Children's art and art for special needs children.* Seoul: Education & Science.

Hanson, A. (2013). *The use of art therapy and cognitive behavioral therapy to address trauma symptoms in hospitalized children*. A paper presented to the faculty of the Adler graduate school, .Richfield, United States.

Haskins, T. M. (2012). *Influence of choice on motivation to learn for students with autism: Effect on student interest, writing achievement, latency, and behavior*. Unpublished doctoral dissertation. Eastern Michigan University, Ypsilanti, United States.

Heider, F. (1958). *The psychology of interpersonal relations*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Heimlich, E. P., & Mark, A. J. (1990). *Paraverbal communication with children: Not through word alone.* New York: Plenum Press.

Henley, D. (1991). Facilitating the development of object relations through the use of clay in art therapy. *American Journal of Art Therapy*, *29*, 69-76.

Henley, D. (1992). *Exceptional children, exceptional art*. Worcester, MA: Davis Publications

Hermaan, U. (1995). A Trojan horse oSf clay: Art therapy in a residential school for the blind. *The Arts in Psychotherapy, 22*(3), 229-234.

Hinz, L. D. (2006). *Drawing from within: Using art to treat eating disorders*. London: Jessica Kingsley.

Hinz, L. D. (2009). *Expressive Therapies Continuum: A Framework for Using Art in Therapy*. New York: Routledge.

Hiroto, D. S. (1974). Locus of control and learned helplessness. *Journal of Experience Psychology, 102*(2), 187-193.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Beverly Hills, CA: Sage Publications.

Hofstede, G. (1991). *Cultures and organizations: Software of the mind.* London: McGraw Hill.

Hong-ik University Art Institution (2001). *Visual design*. Ministry of Education & Human Resources Development.

Horak, W. J., & Slobodzian, K. A. (1978). The effects of locus of control and method of presentation on pre-service teacher's achievement. *Proceedings from the Annual Meeting of the National Association for Research in Science Teaching*, Toronto: Canada.

Hrenko, K. D. (2005). Remembering camp dreamcatcher: Art therapy with children whose lives have been touched by HIV/AIDS. *Art Therapy: Journal of the American Art Therapy Association, 22*(1), 39-43.

Hwang, J., & Kim, J.(2010). The Use of Clay in Art Therapy: A theoretical study. *The Journal of the Korea Society of Craft, 13*, 30-49.

Ihhelder, B., & Piaget, J. (1958). The growth of logical thinking: From childhood to adolescence. An essay of on the construction of formal operational structures. London: Routledge.

James, W. H. (1957) *Internal versus external control of reinforcement as a basic variable in learning theory*. Unpublished doctoral dissertation, The Ohio State University, Columbus, United States.

Jeon, Y., & Choi, W. (2001). A case study of art therapy to improve the self-concept of girl-patriarch-adolescent. *Art Therapy Research, 8(1)*, 128-152.

Jones, R. L., & McGhee, P. E. (1972). Locus of Control, reference group, and achievement in blind children. *Rehabilitation Psychology, 19*, 18-26.

Kagin, S. L. (1969). *The influence of structure in painting on verbal and graphic self-expression of retarded youth*. Unpublished master's thesis. Tulsa University, Tulsa, OK, United State.

Kagin, S. L., & Lusebrink, V. B. (1978). The expressive therapies continuum. *Art Psychotherapy*, *5*, 171-180.

Kang, K., Choi, S., & So, J.(2010). The effect of mandala art activity focused on self-expression on mentally retarded children's social and emotional development. *Journal of the Korean Academy of Art Therapy, 5*(2), 67-77.

Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child, 35(4),* 100-136.

Kanoy, K. W., Wester, J., & Latta, M. (1990). Understanding differences between high-and low-achieving women: Implications for effective placement and teaching. *Journal of College Student Development, 31,* 133-140.

Kavale, A. K., & Forness, R. S. (1995). *The nature of learning disabilities: Critical elements of diagnosis and classification*, Mahwan, NJ: Lawrence Erlbaum.

Kelley, H. H. (1972). Attribution in Social Interaction. in E. Jones (eds.). *Attribution: Perceiving the Causes of Behavior*. Morristown, N.J.: General Learning Press.

Kennedy, B. L, Lynch, G. V., & Schwab, J. J. (1998). Assessment of Locus of Control in patients with anxiety and depressive disorders. *Journal of Clinical Psychology, 54*, 509-515.

Kesici, S. (2008). Democratic teacher belief according to the teacher's gender and Locus of Control. *Journal of Instructional Psychology, 35*, 62-69.

Kesternbaum, J. M., & Hammersla, J. (1976). Filler items and social desirability in Rotter's Locus of Control scale. *Journal of Personality Assessment, 40*, 398-406.

Kim, D., & Choi, E. (1996). Effects of art therapy using plastic activity on object relations of autistic disorder. *Korean Journal of Art Therapy, 3*(2), 19-55.

Kim, H. (2006). *The effect of art therapy for self-esteem, internal locus of control, and coping skill for stress. Unpublished master's thesis*. Seokang University, Seoul, South Korea.

Kim, J. (1983). *Internal and external locus of control of children and the relationship with a perceived fosterer*. Master's thesis. I-Hwa Womans University, Seoul, South Korea.

Kim, Y. (1999). *A study on children's human nature development*. Unpublished master's thesis. Kookmin-University, Seoul.

Kim, J. (2002), A study on the effect of the three-dimensional activity in art therapy: focus on children with intellectual disability, *Korean Journal of Arts Therapy*, *1*. 257-276.

Kim, J. (2011). *A study on program for integrated approach to clay-therapy*. Unpublished master's thesis. Gachon University, Sungnam, South Korea.

Kim, M. (2003). *The effect of group art therapy program on under achievers' self - esteem and motivation for Learning*. Unpublished master's thesis. Daegu University, Daegu, South Korea.

Kim, M. (2011). *The effect of art therapy in small group based on three-dimensional formative activities on social skills of the adolescent with intellectual disabilities*. Unpublished master's thesis. Daegu University, Daegu, South Korea.

Kim, Y., Leventhal, B. L., Koh, Y., Laska, E., Lim, E., Cheon, K., Kim, S., Kim, Y., Lee, H., Song, D., & Grinker, R. R. (2011). Prevalence of autism spectrum disorders in a total population sample. *American Journal of Psychiatry, 168,* 904-912.

Kim, S. (1992). *Introduction of art education*. Seoul: Mijin-sa.

Kim, S. (2009). *Art therapy for children with intellectual disabilites*. Unpublished master's thesis. Hansung University, Seoul, South Korea.

Kim, S., & Lee, K., (2002). A Case Study of Group Art Therapy Program for the Improvement of Interpersonal Behavior of Exceptional Students in Special School. *Emotional and Learning Disabilities, 17(3),* 239-255.

Kim, Y. (1991). *Language of special needs children*. Seoul: Special Education.

Kinnison, L. (1988). Learning characteristics of title XX day care children. *Paper presented for Practitioners in Amarillo*, TX.

Kirk, S (1963). Behavioral diagnosis and remediation of learning disability. *In Proceeding of the conference on exploration into the problems of the perceptually handicapped child* (pp. 1-7). Evanston: Fund of the Perceptually Handicapped Child, Inc.

Koegel, R. L., Koegel, L. K., & Parks, D. R.(1995).*A guide to self-management: A Training manual*. Santa Barbara: University of California.

Kong, M., Kim, K., Park, K., Lee, K., Lim., H., Jun, S., & Jung. Y. (2004). *Introduction of art therapy.* Deagu: Dong-a.

Kramer, E. (1961). Art and emptiness: New problems in art education and art therapy. *Bulletin of Art Therapy, 1*(1), 7-16.

Kramer, E. (1986). The art therapist's third hand: Reflections on art, art therapy, and society at large. *American Journal of Art Therapy, 24*(3), 71-86.

Kramer, E., & Wilson, L. (1998). *Childhood and art therapy*. Chicago, IL : Magnolia Street Publishers.

Kwon, D. (2006). *Theory and practice in educational psychology*. Seoul: Hak-ji-sa.

Kwon, M., Seo, W, & Choi, N. (2010). The Effects of Clay-Play Activities on Problem Behaviors of Children with Attention Deficit Hyperactivity Disorder. *Journal of Emotional & Behavioral Disorders, 26*(2), 119-140.

Kwon, S. (1996). *The basic of visual design*. Seoul: Misin-sa.

Lamanna, M. D. (2001). The relationship among emotional intelligence, Locus of Control and depression in selected cohort of women. *Dissertation Abstracts International , Section B: Science and Engineering, 61*. 5569.

Land, S. L., & Vineberg, S. E. (1965). Locus of Control in blind children. Exceptional Children, 31, 257-260.

Landgarten (1987). Family art psychotherapy: a clinical guide and case book. Psychology Press.

Lange, R. V., & Tiggemann, M. (1981). Dimensionality and reliability or Rotter I-E Locus of Control scale. *Journal of Personality Assessment, 45*, 398-406.

Lau, R. R. (1988). Beliefs about control and health behavior. In D. S. Gochman (Ed.). *Handbook of health behavior research I.* (pp. 43-63). New York: Plenum Press.

Lau. R. R., & Ware, J. E., Jr. (1981). Refinements in the measurement of health-specific locus-of-control beliefs. *Medical Care, 19,* 1147-1158.

Lauer, S. (2008). External locus of control, problem-focused coping and attempted suicide. North America Journal of Psychology, 10(3), ISSN: 1527-7143. Retrieved from http://www.freepatentsonline.com/article/North-American-Journal-Psychology/191856974.html

Lee, H. (2009). *The practice of art education for special need children.* Seoul: Yangseo-won.

Lee, H., Kang, J., & Kim, H. (2010). A study on the characteristic of maze linguistic on children with specific language impairment. *Korean Special Needs Children Association, 12*(4), 191-213.

Lee, K. (2004). The individual and environmental variables that affect children's game addiction tendency. *Journal of the Korean Home Economics Association, 42*(4), 99-118.

Lee, K., & Choi, I. (2008). *The practical art therapy using material experiences*. Seoul: Sigma Press.

Lee, K., Lee, S., & Jung, O. (2005). The effect of plastic activity centered individual arts therapy on maladaptive behavior of autistic children. *Art Therapy Research, 12*(1), 73-84.

Lee, S., & Park, E., (1998). *Special needs children*. Seoul: Hak-ji-sa.

Lefcourt, H. M. (1976). Locos of control: Current trend in theory and research. Hillsdale, NJ : Erlbaum.

Lefcourt, H. M. (Ed.). (1981). *Research with the Locus of Control construct: Volume 1: Assessment methods*. New York, NY: Academic Press Inc.

Lefcourt, H. M., Baeyer, C. G., Ware, E. E., & Cox, D. J. (1979). The multidimensional-multiattributional causality scale: The development of a goal specific Locus of Control scale. *Canadian Journal of Behavioral Science, 11,* 286-304.

Levenson, H. (1972). Distinction within the concept of internal-external control: Development of a new scale. *Proceedings of the Annual Convention of the American Psychological Association, 7*, 261-262.

Levenson, H. (1973). Reliability and Validity of the I, P, and C scales-A multidimensional view of Locus of Control. *Proceedings.*

Lincoln, A., & Chazan, S. (1979). Perceived competence and intrinsic motivation in learning disability children. *Journal of Clinical Child Psychology, 8*(3), 213-216.

Lowenfeld, V. (1987). Therapeutic aspects of art education. *American Journal of Art Therapy, 25,* 112-146.

Lusebrink, V. B. (1990). *Imagery and visual expression in therapy.* New York, NY: Plenum Press.

Lusebrink, V. B., Martinsone, K., & Dzilna-Silova, I. (2012). The expressive therapies continuum (ETC): Interdisciplinary bases of the ETC. *International Journal of Art Therapy,* (ahead-of-print), 1-11.

Mahler, I. (1974). A comparative study of locus of control. *Psychologia, 17*(3), 135–139.

Malchiodi, C. A. (1998). *Understanding children's drawings*. New York: Guilford Press.

Malchiodi, C. A.(2003). *Handbook of art therapy*. New York: The Guilford Press.

Mamlin, N., Harris, K. R., Case, L. P. (2001). A Methodological Analysis of Research on Locus of Control and Learning Disabilities: Rethinking a Common Assumption. *Journal of Special Education* (Winter).

Martinko, M. (1995). *Attribution theory: An organizational perspective*. Boca Raton, FL: CRC Press.

Maier, S. F., & Seligman, M. E. P. (1976). Learned helplessness: Theory and evidence. *Journal of Experimental Psychology: General, 105* (1), 3-46.

McGinnies, E., Nordholm, L. A., Ward, C. D., & Rianthumnavin, D. L. (1974). Sex and cultural differences in perceived Locus of Control among students in five countries. *Journal cf Consulting and Clinical Psychology, 42*, 263-26.

McKeen, T. (1994*). Soon will come the light: The view from inside the autism puzzle*. Kent: Future Horizon.

McLaughlin, J. (1990). *Building a cases for arts education: An annotated bibliography of major research*. Lexington, KY: Kentucky Alliance for Arts Education.

McMurray, M., Schwartz-Mirman, O., & Maizel, S. (2000). Art therapy: Indications for treatment of choice. *The Arts in Psychotherapy, 27*(3), 191-196.

McNiff, S. (1992). *Art as medicine*. Boston: Shambhala.

Menzen, K. H. (2001). *Grundlagen der Kunsttherapy.* Munchen, Germany: Ernst Reinhardt Verlag.

Mercer, C. D. (1991). *Studies with learning disabilities (4th Ed.)*. New York: Macmilliam.

Merver, C. D., & Snell, M. E. (1977*). Learning theory research in mental retardation: Implications for teaching*. Columbus: Merrill.

Metzl, E. S. (2008). Systematic analysis of art therapy research published in *Art Therapy: Journal of AATA* between 1987 and 2004. *The Arts in Psychotherapy, 35*, 60-73.

Mischel, W., Zeiss, R., &Zeiss, A. (1974). Internal-external control and persistence: Calidataion and implication of the Stanford Preschool Internal-External Scale. *Journal of Personality and Social Psychology, 29,* 265-278.

Min, S. (2006). *Modern psychiatry*. Seoul: Il-jo-gak.

Moon, C. H. (2010). *Material & media in art therapy: Clinical understandings of diverse artistic vocabularies.* London: Routledge.

Morgan, P. L., Farkas, G., Tufis, P. A., & Sperling, R. A. (2008). Are reading and behavior problems risk factors for each other? *Journal of Learning Disabilities, 41*, 417-436.

Mueller, L. S., & Thomas, S. A. (2000). Culture and entrepreneurial potential: A nine country study of locus of control and innovativeness. *Journal of Business Venturing, 16,* 51-75.

Murfee, E. (1995). *Eloquent evidence: Arts at the core of learning*. Washington, DC: President's Committee on the Arts and Humanities.

Naumberg, M. (1987). *Dynamically oriented art therapy: Its principles and practice*. Chicago: Magnolia Street.

Nowicki, S., & Duke, M. (1974a). A Locus of Control scale for college as well as non-college adults. *Journal of Personality Assessment, 38*, 136-137.

Nowicki, S., & Duke, M. (1974b). A preschool and primary internal-external control scale. *Developmental Psychology, 10*, 874-880.

Nowicki, S., & Duke, M. (1974c). The determinants of Locus of Control in a geriatric population and subsequent test of the social learning model for interpersonal distance. *Journal of Psychology, 86,* 277-285.

Nowicki, S., & Segal, W. (1974). Perceived parental characteristics, locus of control. *Developmental Psychology , 10* , 33-38.

Nowicki, S., & Strikland, B. R. (1971). A Locus of Control scale for children. *Paper Presented at the 79th Annual Convention of the American Psychological Association*, Washington: D.C.

Nowichi, S., & Walker, C. (1974). The role of generalized and specific expectancies in determining academic achievement. *Journal of Social Psychology, 94,* 275-280.

Oden, S. L. (1971). *Internal-external locus of control and creativity*. Paper submitted to Graduate College, University of Illinois.

Ogden, T. H. (1989). *The primitive edge of experience*. New York: Rowman & Littlefield Publishers.

O'Gray S. (2005). *Symbolic work with clay as technique with a difficult to reach patient: A Jungian perspective*. Unpublished master's thesis. University of the Western Cape, Cape Town, South Africa.

Oh, J., & Choi, S., (2010). The effects on art activity program with dynamic interaction to improve self-esteem and learning motivation for children with learning disability. The *Journal of Play Therapy, 14(2),* 79-95.

Oh, K. (2004). *Three-dimensional art and space*. Seoul: Mi-jin-sa.

Ollendick, T. H., & Schmidt, C. R. (1987). Social learning constructs in the prediction of peer interaction. *Journal of Clinical Child Psychology, 16*, 80-87.

Ovirk, O, Stinson, R. E., Wigg, P. R., Bone, R. O., & Cayton, L. (2001). Art fundamentals with core concepts. New York: McGraw-Hill Humanities.

Parcel, G. S., & Meyer, M. P. (1978). Development of an instrument to measure children's health locus of control. *Health Education Monographs, 6.* 149-159.

Park, A. (2001). Introduction of personality psychology. Paju: Educational Science.

Park, H., & Kim, K. (2006). *Research method for social science*. Seoul: B & M Books.

Park, I. (2009). *Effects of group art activity program on the maladjusted middle schools' self-esteem and school adjustment*. Unpublished master's thesis. Yongnam University, Kyungsan, South Korea.

Park, J., & Beak, E. (1999). The effects of art therapy on the self-concept of children with behavior disorder, *Art Therapy Research, 6*, 175-188.

Park, J., & Lee, J. (1982). Research articles: A study on students' moral judgments. *Korean Journal of Psychological and Social Issues*, 3(3), 159-171.

Park, K. (1994). *The condition of Korean education for children with autism*. Seoul: Korean education development institute.

Parker, G., & Lipscombe, P. (1981). Influences of maternal overprotection. *The British Journal of Psychiatry, 138*, 303-311.

Parsons, O. A. (1970). Internal and external locus of control and national stereotype in Denmark and the United States. *Journal of Cross-Cultural Psychology, 1*(2), 30-37.

Parsons, O.A., & Schneider, J. M. (1974). Locus of control in university students from eastern and western societies. *Journal of Consulting and Clinical Psychology, 42*(3), 456–461.

Phares, E.J. (1955) *Changes in expectancy in skill and chance situations*. Unpublished doctoral dissertation, Ohio State University, Columbus, United States.

Phares, E.J. (1976). *Locus of control in personality*. Morristown, NJ: General Learning Press.

Piaget, J. (1964). *The early growth of logic in the child*. London: Routledge and Kegan Paul.

Powell, M. L., Newgent, R. A., & Lee, S. M. (2006). Group cinema-therapy: Using metaphor to enhance adolescent self-esteem. *The Arts in Psychotherapy, 33*(3), 246-253.

Power, S., & Rossman, M. H. (1983). The reliability and construct validity of the multidimensional-multiattributional causality scale. *Educational and Psychological Measurement, 43*, 1227-1231.

Prager, K .J. (1982). Intimacy status, Locus of Control and self disclosure in women. *Paper Presented at the Annual Meeting of the American Educational Research Association*, New York.

Rastegar, M., & Heidari, N. (2011). The relationship between locus of control, test anxiety, and religious orientation among Iranian EFL students. *Open Journal of Modern Linguistics, 3(*1), 73-78.

Reid, I., & Croucher, A. (1980). The Crandall Intellectual Achievement Responsibility Questionnaire: A British validation study. *Education and Psychological Measurement, 40*, 255-258.

Reid, D., & Ware, E. E (1974). Multidimensionality of internal versus external control: addition of a third dimension and non-distinction of self versus others. *Canadian Journal of Behavioral Science, 6(2)*, 131-142.

Reiss, S., & Dyhdalo, N. (1975).Persistence, Achievement and opened-spaced environments. *Journal of Educational Psychology, 67*, 506-513.

Reitz, H. J., & Groff, G. K. (1974). Economic development and belief in locus of control among factory workers in four countries. *Journal of Cross-Cultural Psychology, 5*(3), 344–355.

Reviere, S. L. (1993). The use of touch in psychotherapy: Theoretical and Ethical considerations. *Psychotherapy, 30*, 32-40.

Rhodes, M. (2008). Getting the inside out: Speaking with clay. In D. McCarthy (Eds.). *Speaking about the unspeakable: Non-verbal methods and experiences in therapy with children* (pp. 27-44). London: Jessica Kingsley Publishers.

Ryan, R.M. & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist, 55,* 68-71.

Rhyne, J. (1973). *Gestalt art experience*. California: Brooks/Cole Pub. Co.

Riordan, Z. V. (1981). Locus of control in South Africa. *Journal of Social Psychology, 115*, 159-168.

Robbins, A. (2001). An object relations and art therapy. In J.A. Rubin (Ed*.). Approaches to Art Therapy: Theory and techniques* (pp. 54-65). New York: Psychology Press.

Roddenberry, A., & Renk, K. (2010). Locus of Control and self-efficacy: Potential mediators of stress, illness and utilization of health service in college students. *Child Psychology and Human development, 41*, 353-370.

Roger, H. J. (1983). *An exploration of selected affective characteristics of learning disabled children*. Master's thesis, University of Saskatchewa. Saskatoon, Canada.

Rogers, H., & Saklofske, D.H. (1985). Self-concepts, locus of control and performance expectations of learning disabled children. *Journal of Learning Disabilities, 18*(50), 273-278.

Rotter, J. B. (1954). *Social learning and clinical psychology.* New York: Prentice-Hall.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychology Monograph, 80*, 1-28.

Rubin, J. A. (1978). Child art therapy: Understanding and helping children grow through art. New York: Van Nostrand Reinhold.

Rubin, J. A. (1984). *The art of art therapy*. New York: Psychology Press.

Rubin, J. A. (1999). *Art therapy: An Introduction*. London: Taylor and Francis.

Rubin, J. A. (2005). *Child art Therapy*. Somerset, NJ: Wiley.

Sadowski, C. J., & Wenzel, D. M. (1982). The relationship of locus of control dimensions to reported hostility and aggression. *Journal of Psychology, 112*(2), 227-230.

Saltzer, E. B. (1982). The weight locus of control scale: a specific measure for obesity research. *Journal of Personality Assessment, 46*, 620- 628.

Schleien, S., Mustonen, T., & Rynders, J. (1995). Participation of children with autism and nondisabled peers in a cooperatively structured, community art program. *Journal of Autism and Developmental Disorders, 25*, 397-413.

Seffer, C. (2012). Delay discounting, locus of control, and cognitive impulsiveness independently predict tobacco dependence treatment outcomes in a highly dependent, lower socioeconomic group of smokers. *The American Journal on Addictions, 21*(3), 221-232.

Seidon, D. (2001). *Mind over matter: The uses of materials in art, education and therapy.* Chicago: Magnolia Street.

Sekar, K., Aravind Raj, E. (2007). Psychosocial care in disaster management. In K. Sekar, Parthasrathy, Muralidhar, and C. Rao (Eds.). *Handbook of psychiatric social work* (pp. 248-254). Bangalore: NIMHANS.

Seo, S. (1988). *The type of linguistic control of parents and children's internal-external control*. Master's thesis, Seoul National University, Seoul, South Korea.

Seoul National University of Education (1997). *Art in infantile education*. Seoul: Hak-Moon-Sa.

Sherman, W. L. (1984). Development of children's perceptions of internal locus of control: a cross-sectional and longitudinal analysis. *Journal of Personality, 52*(4), 338-354.

Sherwood, P. (2004). *The healing art of clay therapy*. Victoria: ACER Press.

Shogren, A. K., Bovaird, A. J., Palmer, B. S., & Wehmeyer, L. M. (2010). Locus of control orientations in students with intellectual disability, learning disabilities, and no disabilities: A latent growth curve analysis. *Research and Practice for Persons with Severe Disabilities, 35*(3-4), 80-92.

Sholt, M., & Gavron, T. (2004). Therapeutic qualities of clay-work in art therapy and psychotherapy: A Review. *Art Therapy: Journal of American Art Therapy Association*, *23,* 66-72.

Shogren, A. K., Bovaird, A. J., Palmer, B. S., & Wehneyer, L. M. (2010). Locus of control orientation in student with intellectual disability, learning disabilities, and no disabilities: A latent growth curve analysis. *Research and Practice for Persons with Severe Disabilities,* 34(3-4), 80-92.

Schultz, D.P., & Schultz, S.E. (2005). *Theories of Personality* (8th ed.). Wadsworth: Thomson.

Silver, R. A. (1978). *Developing cognitive and creative skills through art: programs for children with communication disorders or learning disabilities*. Baltimore: University Park Press.

Sin, D., & Choi, S. (2010). A Study on the Condition of Assessment regarding Social Skill Instruction for Elementary Students with Mild Intellectual Disability. *Special Education, 9*(2), 93-121.

Smith, T. E. C., Polloway, E. A., Patton, J. R., & Dowdy, C. A. (2008). *Teaching students with special needs in inclusive settings*, (5th edition). Boston: Allyn & Bacon.

Song, S. (1997). *Performance level of intellectually disabled children's art*. Unpublished master's thesis. Dankuk University, Seoul, South Korea.

Spaniol, S. (1998). Toward an ethnographic approach to art therapy research: People with psychiatric disability as collaborator. *Art Therapy: Journal of the American Art Therapy, 15*(1), 29-37.

Srinvasan, N., & Tikoo, S. (1992). *Effect of locus of control on information search behavior. Advances in Consumer Research, 19*, 498-504.

Staubach, S. (2005). *Clay: The history and evolution of humankind's relationship with earth's most primal element*. New York: Berkley.

Stephens, M. W. (1972). Dimensions of Locus of Control: Impact of early educational experiences. Proceedings of the 80th Annual Convention of American Psychological Association, Los Angeles, CA.

Stipeck, D. J., & Weisz, J. R.(1981). Previewed personal control and academic achievement. *Review of Educational Research*, 51, 101-137.

Strickland, B. R. (1989). Internal-external control expectancies: From contingency to creativity. *American Psychologist*, 44, 1-12.

Stocks, A., April, K. A., & Lynton, N. (2012). Locus of control and subjective well-being- a cross cultural study. *Problems and Perspectives in Management, 10*(1), 17-25.

Stokes, T. F.,& Baer, D. M.(1977). An implicit technology of generalization. *Journal of AppliedBehaviorAnalysis,10*, 349-367.

Swenson, A. B. (1991). Relationships: Art education, art therapy, and special education. *Perceptual and Motor Skills 72,* 40-42.

Thomas, A. (1979). Learned helplessness and expectancy factors: Implications for research in learning disabilities. *Review of Educational Research, 49*, 208-221.

Tong, J., & Wang, L. (2006). Validation of Locus of Control scale in Chinese organizations. *Personality and Individual Differences, 41*, 941-950.

Trantnik, T. (2012, July, 15). Why claytherapy is effective in treating childhood trauma. *Online.* Retrieved from www.playtherapyclay.com/files/why_clay_therapy_is_effective

United States Office of Education. (1977). *Definition and criteria for defining students as learning disabled*. Federal Register, 42:250, p. 65083. Washington, DC: U.S. Government Printing Office.

Virshup, E., Riley, S., & Shepherd, D. (1993). The art of healing trauma: Media, techniques, and insights. In E. Virshup (Ed.). *California art therapy trends*. Chicago: Magnolia Street.

Wadeson, H. (1987). *Dynamics of art therapy*. Somerset, NJ: Wiley.

Wadeson, H. (2000). *Art therapy practice: Innovative approach with diverse populations*. New York: John Wiley & Sons.

Wall, K. (2011). *Special needs and early years: A practitioner guide*. London: SAGE Publications Ltd.

Waller, D. (1993). *Group interactive art therapy: Its use in training and treatment*. London: Routledge.

Wallston, B. S., & Wallston. K. A. (1981). Health locus of control. In H. Lefcourt (Ed.), *Research with the locus of control constructor: Vol. I. Assessment methods.* New York: Academic Press.

Wehmeyer, M. L. (1993). Reliability and acquiescence in the measurement of locus of control with adolescents and adults with mental retardation. *Psychological Reports,* 75, 527-537.

Wehmeyer, M. L. (1994). Perception of self-determination and psychological empowerment of adolescents with mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities, 29*, 9-21.

Wehmeyer, M. L., & Kelchner, K. (1996). Perceptions of classroom environment, locus of control and academic attributions of adolescents with and without cognitive disabilities. *Career Development for Exceptional Individuals, 19,* 15-29.

Wehmeyer, M. L., & Palmer, S. B. (1997). Perceptions of control of students with and without cognitive disabiilties, *Psychological Reports, 81*, 195-206.

Weiner, B. (1980). The role of affect in rational (attributional) approaches to human motivation, *Educational Researcher, 9*(7), 4-11.

White, L. M. (2002). *Printmaking for art therapists by Lucy Mueller*. London: Jessica Kingsley.

White, P. R. (2001). *Clay therapy: A manual of therapeutic application of clay with children*. Rockford, IL: The Weebstar Press.

Willimas, K., Kramer, E., Henley, D., & Gerity, L. (1997). *Art, art therapy, and the seductive environment. American Journal and Art Therapy, 35*(4), 106-117.

Wolinksy, F., Vander, M. W., Martin, R., Uverzagt, F. W., Willis, S. L., Marsiske, M., Rebok, G. W., Morris, J. N., Ball, K. K., & Tennstedt, S. L. (2009). Does cognitive training improve internal locus of control among older adults? *Journal of Gerontology: Social Sciences, 65*(5), 591-598.

Zwick, D. S. (1978). Photography as a tool toward increased awareness of the aging self. *Art Psychotherapy: An International Journal, 5*(3), 135-141.

BIOGRAPHICAL SKETCH

Jeeyoon Kim was born in Trier, Germany, and lived there until entering elementary school in Seoul, South Korea. After receiving BFA in ceramics at Hong-ik University in Seoul, South Korea in 2007, she continued her education at Korean clinical art therapy association and entered graduate art psychotherapy program at Gachon University of Medicine and Science. She received her MPH in art psychotherapy in 2011. In 2011, she entered the Doctoral program in art therapy at the Florida State University, earning her Ph.D. in 2014.

In addition to the presented research, Mrs. Kim has worked with the aged suffering from dementia, patients with schizophrenia, Down Syndrome. She has worked with children with special needs at day care center, elementary schools, social welfare centers, and hospital. She performed her internship as an art therapist at close ward and rehabilitation ward at Gill Hospital. She has presented at the International Healing Art Association conferences, adoptive function of art.

Mrs. Kim has worked as a part-time instructor for graduate art therapy program at Gachon University. Additionally, she published a paper *The use of clay in art therapy: A theoretical study* at *The Korea Society of Art and Design*. . She is a member of board of directors of International Healing Art Association.