Art Therapy and Acceptance, an Approach to Treatment for

Children with Chronic Pain;

a Literature-based Study

A Thesis

Submitted to the Faculty

of

the Creative Arts in Therapy Program

College of Nursing and Health Professions

Drexel University

by

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in partial fulfillment of the

requirements for the degree

of

Master of Arts

November, 2009
ACKNOWLEDGEMENTS

I would like to thank Nancy Gerber, Ph.D., ATR-BC, LPC for encouraging me forward through this challenging process and supporting development of a new way of writing and thinking. I would also like to thank my committee members Jessica W. Guite, Ph.D. and Margo N. Orlin, PT, Ph.D. for their thoughtful comments and questions. I would like to thank Dr. Guite for expanding the review of pediatric chronic pain to include foundational research and for guidance on areas of focus. I would like to thank Dr. Orlin for asking questions that suggested a new perspective in areas that were unfamiliar such as physical therapy.
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Abstract

Art Therapy and Acceptance, an Approach to Treatment for Children with Chronic Pain; a Literature-based Study
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The objective of the study was to develop an art psychotherapy treatment approach for pediatric chronic pain that incorporates the concept of acceptance. The design of the study was literature-based and used a grounded theory method of data analysis. This study explored an intersection of the topical areas of art therapy, pediatric chronic pain, and acceptance. The major findings of the study were five interactive components that created a theoretical approach called the Art Therapy Acceptance Approach (ATAA). The five components are *Multiple factors in pediatric chronic pain*, *Therapeutic relationship*, *Developing capabilities*, *Imagination* and *Attention*. The core category which was identified in each of the components is called *Discovering possibilities through acceptance*. The core category suggested how acceptance may function within the ATAA. Acceptance is identified as part of a process of discovering possibilities, or finding options within the context of each of the components of the ATAA. For example acceptance of a biopsychosocial approach to chronic pain is theorized to be connected to finding greater options for treatment such as complementary therapies. This study considered whether children who are in the concrete operational stage of cognitive development, and who experience chronic pain, may be able to
understand and benefit from acceptance if it is introduced through metaphor, storytelling, or image in art therapy. The data contributing to three components of the ATAA, in particular, supported this theory. A significant implication of the ATAA is the suggestion of a new treatment approach for children ages 7-12, to manage chronic pain. Related clinical recommendations included art therapy assessments of developmental level and a multidisciplinary treatment setting for the ATAA. Limitations in data sources, particularly in the topical areas of acceptance, complementary and alternative medicine (CAM) therapies, and art therapy impacted the validity of the model. It was suggested that research evaluating the clinical application of the ATAA model would benefit from research that examined the impact of parents’ participation on clinical interventions for children with chronic pain, how school-aged children use metaphor in art therapy, and how family art therapy may contribute to children’s ability to manage chronic pain and parents’ ability to care for a child with chronic pain.
CHAPTER 1: INTRODUCTION

The purpose of this literature based study was to formulate an art therapy approach for children ages 7-12 with chronic pain, which incorporates the concept of acceptance. This study explored how an art therapy approach incorporating acceptance could provide a complementary treatment to current interventions for children who have chronic pain. Literary data from multiple sources were collected, organized, coded, and analyzed. Literary data included qualitative and quantitative research studies, case histories, and book chapters. Literary data were collected in five topical areas: 1) pain/chronic pain, 2) pediatric chronic pain, 3) acceptance, 4) treatments/interventions for pediatric chronic pain, and 5) art therapy including medical art therapy and art therapy for children with pain. The topical area of treatments/interventions for pediatric chronic pain included: complementary and alternative medicine (CAM) treatments and acceptance and commitment therapy (ACT) for pediatric chronic pain. It was theorized that children in the concrete operational stage of cognitive development may be able to understand and benefit from acceptance if it is introduced through the language of art therapy—through image, metaphor, and storytelling. The result of this data collection and analysis was the development of patterns of evidence and the formulation of a theory, or an approach to art therapy.

The question of whether acceptance, as part of an art therapy approach, may benefit children with chronic pain, was identified in literature discussing the cognitive and imaginative abilities of children aged 7 to 12 years. Childhood is commonly defined as the period from 0 to 12 years of age, encompassing infancy, toddlerhood, early school
age and middle childhood. Middle childhood is defined as the period between 6 and 12 years of age (Newman & Newman, 2006). Research suggested that children in the concrete stage of cognitive development are able to describe pain using analogies (Beales, Lennox-Holt, Keen, & Mellor, 1983; Gaffney & Dunne, 1986). Analogies are similar to metaphor in that both are used to make a connection between an abstract idea and a real world experience. For example, children between ages 8 and 10 have described pain as: “…a feeling like knives and forks stabbing you” (Gaffney & Dunne, p.111). In a study about children’s beliefs about the physical nature of illness and treatment, children with juvenile chronic arthritis (JCA) between ages 7 and 11, were able to understand physiological aspects of disease through analogies that used familiar objects (Beales et al., 1983). Beales et al. reported that children compared blood vessels to pipelines and nerves to electrical wiring. In the concrete operational stage of cognitive development children’s mental representations are not completely abstract, and are still linked to objects and experiences in the physical world (Newman & Newman, 2006; Pulaski, 1980; Rosen, 1985). The ability of school aged children to compare a feeling or internal bodily activity to familiar objects in their environment supported the rationale of children’s ability to use metaphor to explore acceptance and their experience of chronic pain. In describing changes in children’s use of imagery within a cognitive developmental framework, Lusebrink (1990) states that although children between the ages of 8 and 12 years of age are able to experiment with internal images, their expression of these images through concrete means, such as drawing, is a more successful means of communication than more abstract methods (Lusebrink, 1990, chap.2). A more abstract method might be relying only on verbal exchange.
Support for developing an art therapy treatment approach for children with chronic pain was strengthened by literature that described the extent of the problem of pediatric chronic pain. Pediatric chronic pain is a common problem among the general pediatric population that negatively affects everyday functioning of children and their families (Gold et al., 2009; Huguet & Miro, 2008; Kashikar-Zuck, Vaught, Goldschneider, Graham & Miller, 2001; Sallfors, Fasth, & Hallberg; 2002). For example, lowered functioning in children with chronic pain is evidenced by scores on the Pediatric Quality of Life Inventory (PedsQL) (Gold et al., 2009). Depression (Kashikar-Zuck et al., 2001) and experiences of pain involving dependency, ambivalence, and uncertainty about the future (Sallfors et al., 2002) were associated with disability. A cross-sectional population survey studying the prevalence of pain in Dutch children aged 0 to 18 years found prevalence rates for the most frequently reported pains—headache, abdominal pain, and limb pain—to be: 23%, 22% and 22% respectively (Perquin et al., 2000). For children less than 8 years old, who reported one pain location, the most prevalent chronic pain was chronic abdominal pain. For children aged 8 years and over with one pain location, limbs, head, and abdomen, were the most common types of pain (Perquin et al.). In a sample of 561 Spanish schoolchildren, ages 8 to 16, Huguet and Miro (2008) found that 37.3% reported chronic pain. Consistent with Perquin et al.’s (2000) findings, complaints of lower limb pain, headache, and abdominal pain were the most prevalent (Huguet & Miro, 2008). In a study examining the impact of chronic pain on daily lives of children in Germany, Roth-Isigkeit, Thyen, Stoven, Schwarzenberger & Schmucker (2005) found that of 749 children and adolescents, 83% had experienced pain during the preceding 3 months and 30.8% reported pain duration of greater than 6 months. The
order of prevalence for type of pain was: headache, abdominal pain, limb pain and back pain (Roth-Isigkeit et al., 2005).

The literature review and data collection process organized literature into five topical areas: 1) pain/chronic pain, 2) pediatric chronic pain, 3) acceptance, 4) interventions for pediatric chronic pain, and 5) art therapy including medical art therapy and art therapy for children with pain. Following, is a brief overview of the topics covered in the Literature Review chapter.

Pain/chronic pain and pediatric chronic pain were the first two areas of review. Pediatric chronic pain is part of the larger category of pain. Pain is defined as: “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Merskey & Bogduk, 1994). Within the broad category of pain, two types are described: acute pain and chronic pain. Acute pain is defined as: “…relatively brief pain caused by disease and trauma” (McGrath & Hillier, 2002, p. 535). Chronic pain is defined as pain that continues for a longer time than is expected for healing, or remains or reoccurs for reasons other than the original source of pain (American Pain Society, 2008). Pediatric chronic pain is further defined as pain in children that includes persistent or ongoing, and recurrent or episodic pain (American Pain Society, 2008). A specific definition of chronic pain in children and adolescents is: “pain that persists or recurs for 3 months or longer in people of 21 years or under” (Eccleston, Morley, Williams, Yorke & Mastroyannopoulou, 2002, p.158).

Two major models of understanding and measuring pain have been identified in the literature: the biomedical and biopsychosocial model. The biomedical model of pain views pain as stemming from physical injury or damage, with medical interventions
aimed towards fixing the physical source of pain (Turk & Monarch, 2002). The biopsychosocial model of chronic pain conceptualizes pain as an experience that is shaped by a range of factors such as physiological processes, cognitions, emotional state and sociocultural context (Turk & Monarch, 2002). This model was originally proposed by Engel (1977) as a challenge to the biomedical model, in its view that illness is manifested from a contribution of factors including behavioral, psychosocial and biological processes. The biopsychosocial model is the predominant model for assessing and treating chronic pain (Clinch & Eccleston, 2009; Zeltzer et al., 1997). The development of the biopsychosocial model involved consideration of the inadequacy of the disease model to explain levels of pain and disability and the contribution of the gate control theory (GCT) and neuromatrix theories of pain (Turk & Monarch, 2002). The GCT, originally outlined by Melzack and Wall (1965), presented a new way to conceptualize pain as involving both psychological and physiological processes (Keefe et al., 2005; Main & Watson, 1999; Melzack & Wall, 1965; Turk & Monarch, 2002).

Acceptance was the third topical area of review. Within the field of cognitive behavioral therapy (CBT) research, acceptance has been incorporated into treatment for adults with chronic pain (Vowles, McCracken & Eccleston, 2007, 2008; Kratz, Davis & Zautra, 2007). In Vowles et al. (2007, 2008), acceptance was introduced as part of a treatment protocol that was consistent with Acceptance and Commitment Therapy (ACT). For example, Vowles et al. (2007) reported that changes in acceptance of pain for adults with chronic pain accounted for significant changes in variance of outcome variables measuring depression, anxiety, and disability in physical and psychosocial areas. There was limited research indicating the benefits of incorporating acceptance into
treatment of children (ages 10 to 18) or adolescents (ages 13 to 20) with chronic pain (Wicksell & Greco, 2008; Wicksell et al., 2009; Wicksell et al., 2007).

The fourth area of review, interventions for pediatric chronic pain, was included to provide a picture of the current treatments among which art therapy could be included as a complementary one. The main areas of treatment reviewed were:

1) pharmacological options (Anderson & Palmer, 2006; McGrath, 2005; Walker, 2008)
2) physical therapy (Lee et al., 2002; Sherry, Wallace, Kelley, Kidder & Sapp, 1999) and
3) complementary and alternative medicine (CAM) treatments (Lin, Lee, Kemper & Berde, 2005; Eccleston et al., 2002; Bursch et al., 1998; Tsao et al., 2005).

The National Center for Complementary and Alternative Medicine (NCCAM) has designated five categories of CAM treatments, one of which is called *mind-body interventions* (Lin, Lee, Kemper & Berde, 2005). The CAM treatments reviewed in this study were delimited to the mind body category which included: cognitive behavioral therapy, biofeedback, relaxation therapy, guided imagery, meditation, and art, music, and dance/movement therapy.

The effectiveness of several treatments in the NCCAM category of mind body, in reducing pain and improving other pain-related outcome measures was assessed in a recent systematic review (Eccleston, Palermo, Williams, Lewandowski & Morley, 2009). Eccleston et al. (2009) examined the effectiveness of psychological therapies for reducing pain and disability, and improving mood for children and adolescents with recurrent, episodic or persistent pain. Psychological therapies that Eccleston et al. (2009) referred to included relaxation, hypnosis, coping skills training, biofeedback, and cognitive behavioural therapy. Among the therapies examined, the study results showed that there
is good evidence that both relaxation and cognitive behavioral therapy are effective in reducing the severity and frequency of chronic headache, recurrent abdominal pain, and fibromyalgia (Eccleston et al., 2009). One of the themes found in the systematic review was that not enough studies aim to measure the impact of psychological therapies on reducing disability or on mood (Eccleston et al.).

Within the creative arts therapies, researchers have assessed the impact of Music Therapy (MT) on procedural pain (Mathur, Duda, & Kamat, 2008; Whitehead-Pleaux, Zebrowski, Baryza, & Sheridan, 2007) and chronic pain (Loewy, MacGregor, Richards & Rodriguez, 1997). The impact of Dance/Movement Therapy (DMT) on children with chronic pain (Christie, Hood & Griffin, 2006; Goodill, 2005) or hospitalized with other illnesses (Mendelsohn, 1999) has also been reported.

Art therapy, including medical art therapy and art therapy for children with pain, was the fifth area of review. The art therapy process was described in literature and in case studies as one that facilitated communication and expression of complex ideas through the use of imagery, metaphor, and storytelling (Landgarten, 1981; Rubin, 2005; Tanaka, Kakuyama & Urhausen, 2003; Wadeson, 2000). Children in art therapy used metaphor to explore difficult emotions, try out new behaviors, and imagine new situations from a psychologically safe position (Landgarten, 1981; Wadeson, 2000). The art therapy process was also described as a process of mastery in which children began to discover and organize their own story (Landgarten, 1981; Silver, 1989). The use of art therapy for purposes of addressing physiological symptoms and related issues is called medical art therapy. Medical art therapy is a specialization within art therapy that developed to address some of the unique challenges faced by individuals with medical
conditions. Within medical art therapy, the field of pediatric art therapy includes work with children who have a range of conditions such as cancer (Favaro-Scacco, 2001), asthma (Gabriels, Wamboldt, McCormick, Adams & Taggart, 2000), traumatic burn injuries (Russell, 1995), other traumatic physical injuries (Chapman, 2001), Cystic Fibrosis (Fenton, 2000), and bipolar disorder (Henley, 2007). Art therapy in a medical setting offers opportunities for experiences of control and empowerment (Councill, 2003; Fenton, 2000). The art therapy process supports patients’ defenses and enables expression of difficult emotions. The building of a therapeutic alliance and providing materials that accommodate physical limitations support exploration of a patient’s psychological experience of his medical illness (Councill, 2003; Sundaram, 1995; Wadeson, 2000). In the area of medical art therapy for children, research addressing chronic pain is limited. Of note, is the work of Palmer and Shepard (2008), who studied the treatment of art therapy in the case of a child with idiopathic chronic pain and Savins’ (2002) case history of a child with chronic pain in a hospital setting.

The art therapy treatment approach presented here supplements current chronic pain treatment literature and offers a research topic to further build an evidence base of complementary therapies in the pediatric pain population. Whereas previous research has described the role of acceptance in shaping positive outcomes for adults with chronic pain (Vowles, McCracken & Eccleston, 2007, 2008), a limited number of studies used acceptance in the rehabilitation of children and adolescents with chronic pain (Wicksell & Greco, 2008; Wicksell, Melin, Lekander & Olsson, 2009; Wicksell, Melin & Olsson, 2007). The use of acceptance in treatment approaches for children thus presents a new area of inquiry.
In summarization, the research question, the major findings and the delimitations of the study are restated again as follows. The question asks, “What are the components of an approach to art therapy, incorporating acceptance, which may be used as a complementary treatment for children, ages 7-12, living with chronic pain?” The data obtained from this research question will support the objective of the study, which is to develop an art psychotherapy treatment approach for pediatric chronic pain that incorporates acceptance.

The major finding of the study was a theoretical framework called the Art Therapy Acceptance Approach, referred to as the ATAA. The grounded theory data analysis process led to the identification of five main components and a core category of the ATAA. The five components of the approach are: *Multiple factors in pediatric chronic pain*, *Therapeutic relationship*, *Developing capabilities*, *Imagination* and *Attention*. The core category, which represents a common theme present in the five components, was also identified: *Discovering possibilities through acceptance*. The narrative results include a description of the components based on their initial identification as categories within the data and with reference to the literature/data sources that substantiated them, and the roles that the components and subcategories play in the ATAA. Following the narrative results are: a figure describing how all five components interact within the ATAA (Figure 1), and one figure for each component focusing on its contribution to the overall approach (Figures 2, 3, 4, 5, 6).

The collected literary data were delimited to case histories, research studies, and book chapters, and identified through electronic data bases searches. Quantitative and qualitative research was explored. Case histories and research studies were delimited to
those with participants of an age range that encompassed or specified ages 7 to 12, or at minimum, overlapped with this age range. Studies referred to research in the five areas of data collection, published in research journals between 1990 and 2009. CAM treatments were included under treatment/interventions for pediatric chronic pain. Because much of the existing research about CAM therapies has been conducted in the last fifteen years, the use of studies published on or after 1990 for this topic area was considered sufficient. The type of pain was delimited to pediatric chronic pain. Pediatric chronic pain is defined as pain in children that includes persistent or ongoing, and recurrent or episodic pain (American Pain Society, 2008) and as: “pain that persists or recurs for 3 months or longer in people of 21 years or under” (Eccleston et al., 2002, p.158). Research on children who experience acute or short-term pain will not be included. The topical area of pediatric chronic pain was delimited to headache pain, abdominal pain, musculoskeletal pain, and neuropathic pain. This delimitation included the most frequently reported chronic pain conditions: lower limb, headache, and abdominal pain problems (Huguet & Miro, 2008; Perquin, 2000; Roth-Isigkeit et al., 2005). Cancer pain was not included because it involves pain that is usually secondary to treatment (IASP, 2009, Cancer pain in children) rather than ongoing, and may change more dramatically over the course of illness than chronic pain.
CHAPTER 2: LITERATURE REVIEW

Overview

The literature review includes five topics beginning with contextual areas and narrowing to those specific to the topic of the thesis. The first contextual area to be reviewed is pain/chronic pain, which includes a review of predominant models of pain. The second contextual area of review is interventions for pediatric chronic pain including complementary and alternative medicine (CAM) treatments. Topics of direct relevance to the thesis are pediatric chronic pain, acceptance and the related term mindfulness, treatment of pediatric chronic pain using acceptance based strategies, and the discipline of art therapy including medical art therapy.

Pain and Chronic Pain

Definitions

A review of the broad areas of pain and chronic pain provides a context for the specific area of pediatric chronic pain. Pain is defined as: “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Merskey & Bogduk, 1994). Pain is described as a subjective state, and is not the same as the physiological sequence of events that lead to tissue damage in response to a harmful stimulus. Pain is a psychological state in that the absence or presence of tissue damage may be associated with an experience of pain (Merskey & Bogduk). Within the broad category of pain, two types have been described: acute pain and chronic pain. Acute pain is defined as: “…relatively brief pain caused by disease and trauma” (McGrath & Hillier, 2002, p. 535) or by surgical interventions
Unlike chronic pain, acute pain does not disrupt the body’s ability to heal itself, although medical intervention is usually sought (Loeser & Melzack, 1999). Another characteristic of the experience of acute pain is that pain is only experienced for part of the total healing process (Loeser & Melzack). Chronic pain is defined as pain that continues for longer than is expected for healing or that remains or reoccurs for reasons other than the original source of pain (American Pain Society, 2008). For example, in a chronic pain condition, the level of damage to the nervous system may make it impossible for the system to return to homeostasis or a normal state (Loeser & Melzack, 1999). Chronic pain may be activated by an injury or disease but may continue due to reasons other than the source of the pain (Loeser & Melzack, 1999). The experience of pain is shaped by every area of daily functioning such as emotions, interpersonal relationships, and physical health (Turk & Okifuji, 2002). Two models developed to understand chronic pain are the biomedical model and the biopsychosocial model.

**Models**

*Biomedical Model*

The biomedical model focuses on finding specific pathophysiology that is associated with pain (Main & Watson, 1999; Turk, & Okifuji, 2002; Turk & Monarch, 2002; Weiner, 2007). Pain is simplified as originating only in pathophysiology or is viewed as a psychological problem that has a physical manifestation. The biomedical approach to disease seeks to identify a main pathophysiological process and a corresponding treatment, and often negates or inadequately recognizes the role of psychological factors such as anxiety, depression, self-efficacy or helplessness (Keefe et
al., 2005) in the experience of pain. The biomedical model conceptualizes pain symptoms as originating from a somatogenic or psychogenic cause (Main & Watson, 1999). Research evidence against a dichotomous view of pain has been collected (Turk & Monarch, 2002). A narrow view of pain is also associated with the model’s inability to explain the presence of pain when there is an absence of tissue damage, or to explain differences in pain experience among persons with the same amount of tissue damage (Main & Watson, 1999). Attempting to simplify pain as originating from either psychological or physical conditions can lead to the assignment of incorrect causes to a condition (Main & Watson, 1999; Turk & Okifuji, 2002; Weiner, 2007). A further limitation of the biomedical model is the withholding of treatment for patients who do not present with classic sensory symptoms or are otherwise impaired in their ability to express pain (Weiner, 2007). In a biomedical model reported pain intensity is assumed to be a reflection of sensory processing or level of tissue damage (Main & Watson, 1999). However, researchers have not been able to show a correlation between physical pathology and an individual’s level of pain or disability (Keefe et al., 2005; Loeser & Melzack, 1999; Main & Watson, 1999; Turk & Monarch, 2002).

Strengths of the biomedical approach to medicine are viewed from a historical perspective. Over the last century the biomedical approach has been successful in eliminating or reducing the prevalence of many diseases like tuberculosis or polio (Checkland et al., 2008; Weiner, 2007). Weiner (2007) cites sources from the early 20th century that described the success of the biomedical approach in discovering chemical or mechanical treatments for pathophysiology and pathoanatomy which led to successful
treatment of damaging effects of developmental, infectious, or traumatic disease of certain joints.

**Biopsychosocial model**

The biopsychosocial perspective on chronic pain conceptualizes chronic pain as an experience that is shaped by a range of factors such as physiological processes, cognitions, emotional state and sociocultural context (Turk & Monarch, 2002). The development of the *biopsychosocial model* involved consideration of the inadequacy of the disease model to explain levels of pain and disability and was developed further in response to the introduction of the gate control and neuromatrix theories of pain (Turk & Monarch, 2002). The biopsychosocial model was originally proposed by Engel (1977) as a challenge to the biomedical model, in its view that illness is manifested from a contribution of factors including behavioral, psychosocial and biological processes. Engel (1980) proposed that illness and disease be considered through a systems approach in which the person (the patient) belongs to a continuum of systems in which each component is both its own system and a part of the larger system. In this approach, no part of the system can exist in isolation, so treatment of a patient must consider the contribution of all systems (Engel, 1980). This framework is in contrast to the biomedical approach that seeks to target and treat one part of the system. Engel (1980) described levels of organization of the natural system as ranging from atoms and molecules to culture and society; the person represents the lowest level of the social system which includes two-person, family, community, culture-subculture, society-nation and biosphere (p.537).
When it was outlined in 1965, the gate control theory (GCT), developed by Melzack and Wall, presented a new way to conceptualize pain as involving both psychological and physiological processes (Keefe et al., 2005; Main & Watson, 1999; Melzack & Wall, 1965; Turk & Monarch, 2002). The GCT introduced the idea that the experience of pain is shaped by information traveling in two directions towards a meeting point, the gate, where the combination of signals is processed and forms the basis for pain experience. Information travels up from the periphery and down from the cortex resulting in opening or closing of the gate control system (Melzack & Wall, 1965). In the gate control model, information from the cortex that may contribute to the pain experience includes past experiences, attention and emotion (Melzack & Wall, 1965). In the GCT model three areas contribute to the experience of pain: sensory-discriminative, motivational-affective, and cognitive-evaluative (Keefe et al., 2005; Turk & Monarch, 2002). In contrast, the biomedical model of pain focuses on one somatic area of tissue damage as the source of a pain experience. An important aspect of the GCT is its naming of the central nervous system (CNS) as an integral part of mechanisms that lead to pain.

Within the last ten years Melzack has outlined the neuromatrix theory of pain which builds on principles of the gate control theory (Keefe et al., 2005; Melzack, 2005; Turk & Monarch, 2002). The neuromatrix represents a neural pattern that is shaped by one’s genetic inheritance, sensory experience and learning experiences (Melzack, 2005; Melzack, 2001). The neuromatrix theory describes a neural network that processes information from many sources including sensory, cognitive (thoughts, emotions) and from signals originating in the body’s stress regulation system (Keefe et al., 2005). Melzack (2001) proposed that an imbalance in the stress regulation system shaped the
neuromatrix, and that the neuromatrix may be seen as essential for understanding the experience of chronic pain.

An implication of the gate control theory (GCT) is found in an area of research involving attention or focus on pain and how to shift attention away from pain. In data collection of a larger scope, a further review of this area would provide a larger context for discussion of responses to living with chronic pain such as pain associated disability syndrome. The challenge of competing with the attention that chronic pain demands may be related to how complementary therapies such as art therapy could improve children’s ability to cope with chronic pain. The problem of the attention that pain demands is that it seems to be related to avoidance of activities and stressful emotional responses such as fear (Eccleston & Crombez, 1999). It seems that this area of research may be related to the topic of this thesis because acceptance may be a way to challenge attention to pain.

Pediatric Chronic Pain

In this section the topic of pediatric chronic pain will be reviewed. Definitions, and characteristics of pediatric chronic pain including perception of pain and developmental factors, will be addressed.

Definitions

Pediatric chronic pain is defined as pain in children that includes persistent (ongoing) and recurrent (episodic) pain (American Pain Society, 2008). Eccleston, Morley, Williams, Yorke & Mastroynopoulou (2002) state that the accepted definition for chronic pain in children and adolescents is: “pain that persists or recurs for 3 months or longer in people of 21 years or under” (p.158).
Pediatric pain is categorized into broad categories of acute, chronic, and recurrent pain. Acute pain can be classified by its precipitating trauma or disease such as otitis media or ear pain, or burns. Chronic pain can be classified by a variety of factors such as: precipitating and maintaining factors, symptoms, level of disability, or level of social or functional disability (Zeltzer et al., 1997). Recurrent pain is recognized as having a combination of feature of both chronic and acute pain. Recurrent and chronic pains may be identified with or without an organic illness. Common forms of recurrent pain are functional abdominal pain (FAP), headache (of multiple types), and non-arthritis limb pains. Common forms of chronic pain are juvenile rheumatoid arthritis (JRA) and complex regional pain syndrome (CRPS) (Zeltzer et al., 1997). CRPS is a type of neuropathic pain that results from injury to the Central or Peripheral Nervous System and is associated with limb pain and extreme sensitivity to touch, among other symptoms (Lee et al., 2002).

**Characteristics of Pediatric Chronic Pain**

Pediatric chronic pain was described as a common problem among the general pediatric population that negatively affects everyday functioning of children and their families (Gold et al., 2009; Huguet & Miro, 2008; Kashikar-Zuck, Vaught, Goldschneider, Graham & Miller, 2001; Palermo & Chambers, 2005; Roth-Isigkeit, Thyen, Stoven, Schwarzenberger & Schmucker, 2005). Chronic pain was associated with lowered quality of life and increased functional disability for affected children. For example, lowered functioning in children with chronic pain was evidenced by scores on the Pediatric Quality of Life Inventory (PedsQL 4.0, Leon, France; Varni, Seid & Rode, 1999, p. 142) which was used to evaluate the construct of health-related quality of life...
Health-related quality of life (HRQOL) was defined as: “an individual’s subjective perception of his or her functioning and emotional state” (Gold et al., 2009 p.142). Gold et al. stated that HRQOL was often assessed using the PedsQL which judges physical, emotional, social and school functioning in children and adolescents. In a mixed-methods study of 69 children ages 8 to 18, Gold et al. compared HRQOL in children and adolescents with chronic pain, who were seeking outpatient pain management services from an urban children’s hospital, to PedsQL 4.0 population-based normative data and published data on children and adolescents with cancer and rheumatologic conditions. The PedsQL scales include child self-report and a proxy report typically completed by caregivers. A significant difference (p<.05) was found between the reports of children and caregivers who received pain management services and normative data scores from PedsQL subscales of physical, emotional, and school functioning, but not social functioning. Gold et al. (2009) stated that children with chronic pain were at risk for poor total HRQOL including physical, emotional and school functioning as measured by the PedsQL. Children and caregiver subscales and total scores were reported to have met the minimum reliability standard of .70 for individual or group comparisons established by Nunnally & Bernstein (Gold et al., 2009) Limitations of this study included the cross-sectional design, small sample size, and that participants completed measures at home without the supervision of study investigators.

Lowered functioning in children with chronic pain was also indicated in results of qualitative research. Sallfors, Fasth, & Hallberg (2002) conducted a qualitative study to assess the impact of chronic pain on the daily lives of children with juvenile chronic arthritis (JCA). Participants were 22 children ages 6 to 17 years. Data was collected using
taped open interviews and analyzed using a grounded theory method. Results of the study were the identification of a core category: a psychosocial problem titled “oscillating between hope and despair” (Sallfors et al., 2002, p.498) which was related to four subcategories that described aspects of impaired functioning. Results of the study indicated that children’s pain, disease, and treatment interfered with their ability to sustain everyday activities (Sallsfors et al., 2002). Hope was also expressed by the children and seemed to be a response to fluctuations in their conditions, some days being better than others (Sallfors et al.). Validity of the study was maintained by comparison of data from different sources, and strengthened by collection of data from the child participants rather than parents or healthcare professionals. Generalizability may be limited due to the focus on a specific type of chronic pain-- juvenile chronic arthritis (JCA).

Within the area of pediatric chronic pain research, several studies identified factors associated with functional disability in the pediatric pain population (Kashikar-Zuck et al., 2001; Roth-Isigkeit et al., 2005; Schanberg, Anthony, Gil & Maurin, 2003). Disability, as described by the World Health Organization (WHO), focuses on the impact that an illness may have rather than the cause, thus expanding the definition of disability beyond medical or biological functioning (International Classification of Functioning, Disability and Health (ICF), © WHO, 2009). Depression and pain intensity were found to be associated with functional disability in children with chronic pain. A strong and significant positive correlation was found between functional disability and depression (r=0.68, p<0.01) by Kashikar-Zuck et al. (2001). Limitations of Kashikar-Zuck et al.’s study (N=73) were lack of a control group and a self-report format for all measures
except for one. Evidence of good reliability and validity were reported for all four of the measures used. A fifth measure involved parent reported rather than completion of a psychometric instrument.

Pain intensity and functional disability were reportedly related (Kashikar-Zuck et al., 2001; Roth-Isigkeit et al., 2005; Schanberg et al., 2003). Pain intensity was reported to be predictive of degree of restrictions in daily life with a higher pain intensity predicting a greater level of restrictions (Roth-Isigkeit et al., 2005). A significant positive correlation ($p < 0.05$) between functional disability and pain intensity was also reported by Kashikar-Zuck et al. (2001).

There were differing reports in the literature concerning the relationship between levels of pain and depressive symptoms. A positive relationship between higher levels of pain intensity and greater depressive symptoms (Varni et al., 1996), and higher levels of pain and greater sadness (McGrath & Hillier, 2002; Sallsfors 2002), was described in the literature. A negative relationship between measure of pain level and distress (Scharff et al., 2005), and between pain intensity and depression (Kashikar-Zuck et al., 2001) were also reported.

Perception of Pain

A child’s perception of pain was described as changeable (McGrath, 2005, p. 437). This description referred to the multiple factors that contribute to pediatric pain and to the suggestion that these factors change in relationship to children’s growth and development. Factors that influenced a child’s perception of pain were the environmental context including parents’ and others’ behavior (Palermo & Chambers, 2005; Sallfors et al., 2002; Sartain, 2000), age, cognitive developmental level, and previous pain
experience (McGrath, 2005; McGrath & Hiller, 2002; Scharff et al, 2005). McGrath & Hillier (2002) organized factors involved in pain interpretation into three categories: cognitive, behavioral, and emotional. The cognitive level included pain triggers and expectations for treatment outcome; the behavioral level included a child’s responses to his experience of pain, level of involvement in daily activities, or his use of therapy (drug or non-drug); the emotional level included anxiety, depression, or fear from ongoing pain (McGrath & Hillier, 2002). A systems based biological framework also described the chronic pain experience as influenced by factors on several levels: the body level, psychological level, and social level (Kozlowska, Rose, Khan, Kram, Lane, & Collins, 2008).

Developmental Factors Affecting Pain Perception and Beliefs

Perception of illness and pain perception was associated with a child’s developmental level (Beales, Holt, Keen & Mellor, 1983; Bibace & Walsh, 1979; Gaffney & Dunne, 1986; Goodill, 2005). One theory for understanding developmental differences in pain perception was based on stages of cognitive development (Bibace & Walsh, 1979; Gaffney & Dunne, 1986). Piaget’s stages of child cognitive development (Newman & Newman, 2006; Pulaski, 1980; Rosen, 1985) were used as a foundation for understanding how children in middle childhood, between ages 7 and 11, may perceive chronic pain. In reviewing literature on children and chronic pain Piaget and Inhelder’s stages of cognitive development were found to be a framework for discussing children’s beliefs about illness (Beales et al., 1983; Gaffney & Dunne, 1986).

Piaget described four general stages of cognitive development between approximately ages 0 and 12: sensorimotor, pre-operational, concrete operational and
formal operations (Newman & Newman, 2006; Pulaski, 1980; Rosen, 1985). In the sensorimotor stage, between age 0 and 2, learning occurs through sensory perceptions and motor activities. This is the stage in which the child engages in circular reactions, or learning that each action produces a reaction that triggers the original action (Pulaski, 1980). Pulaski reported that at this stage the child is learns through physical experiments in which his body interacts with his environment. By the end of this stage physical actions were reported to be represented by internal images and symbols (Pulaski). During this stage the child was said to gain an awareness of himself as different from other people (Pulaski, 1980; Rosen, 1985). The pre-operational stage, between about 24 months and 6 years of age was characterized cognitively by attention to one object at a time and reasoning that was based on perceptions (Rosen). Attending to one object at a time also included physical and emotional states. Making a transition from one emotion to another was described as more difficult during this stage (Rosen). The child at this stage was reported to use internal symbols to represent mental images, drawings, or dreams (Pulaski, 1980). During the concrete operational stage, ages 6 to 12, children were described as able to acquire a new set of tools for understanding their environment including “internalized mental actions,” logical thought processes, and conservation (Rosen, 1985, p.16). Internalized mental actions were explained as the ability to reverse operations, apply rules of reciprocity, and to classify, differentiate, and combine objects in the environment (Rosen; Pulaski). Mental activities at this stage were stated to be still based on features of the physical environment and not completely abstract (Rosen). The formal operations stage begins at 12 years of age and was described as the last stage of
cognitive development. In this stage thoughts are no longer tied to real experience and one has acquired the ability to abstract (Rosen, 1985).

Children’s concepts of illness, including pain, were found to correspond to the stages of cognitive development outlined by Piaget’s developmental model (Bibace & Walsh, 1979; Gaffney & Dunne, 1986). In discussing dance/movement therapy (DMT) in a medical setting, Goodill (2005) emphasized the importance of understanding how a child’s developmental level impacts his/her experience of illness and hospitalization. In a study of 160 participants between ages 3 and 13, six categories of developmental conceptions of illness were identified and found to be consistent with Piaget’s work on the development of causal reasoning (Bibace & Walsh, 1979). The categories progressed from incomprehension and stages of pre-logical explanations, through concrete-logical explanations for children between approximately 7 and 10, to formal-logical explanations. Formal logical explanations were said to include physiologic and psychophysiologic explanations (Bibace & Walsh, 1979). The categories of incomprehension, phenomenism and contagion, were within the boundaries of Piaget’s pre-operational stage (Bibace & Walsh, 1979). In the pre-operational stage of cognitive development children associated illness with a noticeable symptom and were likely to use magical thinking in considering how an illness was acquired (Goodill, 2005).

Bibace & Walsh’s (1979) categories of contamination and internalization were identified as part of the concrete-logical stage of cognitive development. A characteristic of this stage was an increased ability to recognize the difference between what is internal and external to self (Bibace & Walsh). Bibace & Walsh (1979) reported that in the contamination stage children believed that the cause of illness was a person, object or
external action that was considered bad or dangerous. In the internalization stage children believed that illness was inside the body and that there was an external cause. At this stage descriptions of internal processes linked to illness were vague and nonspecific (Bibace & Walsh, 1979). In the formal operations stage children viewed illness as tied to multiple factors, and understood that the cause was not always known (Goodill, 2005).

Beliefs about illness in children with chronic pain were addressed in a mixed methodology study by Beales, Lennox, Keen & Mellor (1983). Data were collected from 75 patients divided into two groups: aged 7 to 11 and 12 to 17. Beales et al. (1983) conducted informal interviews and asked children descriptive questions about their arthritis and treatment. The results of the study indicated a difference between the age groups in how they imagined arthritis affected their body, how they perceived the purpose of treatments, and how they drew their arthritis (Beales et al., 1983). Beales et al. stated that the 7 to 11 age group relied on familiar aspects of their environment such as unattractive colors and unappealing textures to describe what was happening in their body. The 7 to 11 age group reportedly did not connect emotions or physical characteristics with internal pathology. In comparison, children in the 12 to 17 age group perceived their condition as associated with internal processes. Also, while children in the 7 to 11 age group lacked an understanding of future benefits of treatment, the 12 to 17 age group understood that a current unpleasant procedure could be beneficial later (Beales et al., 1983). A limitation of the study was that information about the validation of the response categories for interview questions was not provided.
Acceptance

Acceptance is a term that will be used as it is defined within the context of current psychotherapy research on chronic pain patients (Dahl & Lundgren, 2006; Hayes, 2004) and as it is defined within the mindfulness meditation therapeutic approach developed by Kabat-Zinn (Kabat-Zinn, 1990). Acceptance was found to be the focus of a number of studies investigating its impact on factors associated with functioning in adults who have chronic pain (Dahl & Lundgren, 2006; Vowles, McCracken & Eccleston, 2008; Vowles, McCracken & Eccleston, 2007). Acceptance was also studied as part of a therapeutic approach, called Acceptance and Commitment Therapy (ACT), for children and adolescents with chronic pain (Wicksell & Greco, 2008; Wicksell, Melin, Lekander & Olsson, 2009; Wicksell, Melin & Olsson, 2007). The application of ACT for children with chronic pain is included in the section of the literature review called Interventions for pediatric chronic pain. Acceptance and Commitment Therapy (ACT) was developed by Hayes in 1999, and belongs to a new generation of treatment approaches within the cognitive behavioral therapy (CBT) tradition (Dahl & Lundgren, 2006; Hayes, 2004). Dahl & Lundgren (2006) discussed ACT in the treatment of chronic pain:

ACT emphasizes observing thoughts and feelings as they are, without trying to change them, and behaving in ways consistent with valued goals and life directions….The basic premise of ACT as applied to chronic pain is that while pain hurts, it is the struggle with pain that causes suffering (p.287).

The second meaning of the term, acceptance, in the present study is as an essential component of the practice of mindfulness meditation (Germer, 2005; Kabat-Zinn, 1990).
Mindfulness meditation was described as the foundation of a therapeutic program developed by Kabat-Zinn to treat stress, pain, and illness (Kabat-Zinn, 1990; Miller, Fletcher & Kabat-Zinn, 1995). In a review of mindfulness-based interventions, Kabat-Zinn (2003) stated: “An operational working definition of mindfulness is: the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p.145).

Acceptance within Mindfulness Meditation

The practice of mindfulness meditation involves developing meditative awareness and a new way of learning (Kabat-Zinn, 1990). In describing the development of meditative awareness, Kabat-Zinn (1990) emphasizes a quality of watchfulness without reactivity. Awareness is described as a state in which one is attentive to what is present without needing to change what is present. Acceptance is related to mindfulness through non-judgment (Germer, 2005). In discussing mindfulness Germer included and addressed acceptance, describing it as a readiness to allow things to be as they are, and to treat pleasurable and painful experiences with equanimity (Germer, 2005). If one is able to see things more clearly through mindful awareness, then developing acceptance becomes more meaningful. In mindfulness meditation acceptance was stated to occur before change (Germer, 2005). Acceptance was also described as a pre-condition for healing (Kabat-Zinn, 1990).

In an introduction to his program of stress reduction for chronic pain patients, Kabat-Zinn (1990) described the development of seven fundamental attitudes that guide the practice of mindfulness meditation. Each of these attitudes involves a state of
openness, rather than reactivity, to mental activity: non-judging, patience, beginner’s
mind, trust, non-striving, acceptance, and letting go (Kabat-Zinn, 1990).

*Mindfulness meditation research in adults*

Positive results concerning mindfulness meditation and improvements in
functioning-related measures for adults with chronic pain, and improvements in stress
related measures for adults with anxiety disorders, were reported (Kabat-Zinn, Lipworth
& Burney, 1985; Miller, Fletcher, & Kabat-Zinn, 1995). For example, significant
reductions were reported in several measures including present-moment pain, inhibition
of activity by pain, and mood disturbance, for adult chronic pain patients trained in
mindfulness meditation as part of a 10-week stress reduction program (Kabat-Zinn et al.,
1985). Another study evaluated the use of mindfulness based stress reduction (MBSR).
MBSR is a training program that introduces people to the practice of mindfulness as a
way to manage stress, pain, illness and everyday difficulties. Miller, Fletcher, & Kabat-
Zinn, (1995) evaluated the use of MBSR for reduction of anxiety symptoms in adult
patients with DSM-III-R-defined anxiety disorders, and reported clinically and
statistically significant improvements in anxiety symptoms after participation in an 8-
week stress reduction intervention (Miller, Fletcher, & Kabat-Zinn, 1995). Significant
reductions in anxiety were maintained at 3-month and 3 year follow-up points.
Limitations of the study included lack of a randomized control group or control for the
treatment framework distinct from the practice of mindfulness meditation.
Generalizability of the study was increased as a result of data collected on a larger group
of participants who received the original 8-week-intervention, but who were not enrolled
in the study: significant improvement were also measured in this data.
Acceptance and Commitment Therapy

Acceptance and commitment therapy aims towards identifying cognitive and behavioral habits that prevent one from living a fulfilling life (Hayes, 2004). Unlike its antecedents, behavioral therapy and cognitive behavior therapy (CBT), ACT does not propose that changes in thoughts or emotions are needed in order to live a healthier life. The goal of ACT is to reduce the power of verbal thought content that is linked to avoidance behavior, and to invest effort in behavior that is consistent with one's personal values (Hayes, 2004). ACT supports nonlinear use of language such as paradox, metaphors, stories, and experiential processes in order to decrease the power of thoughts that limit participation in life activities.

ACT is based on relational frame theory (RFT), a theory that focuses on how language and cognition impact behavior, and on how behavior functions within in a particular context (Greco, Blackledge, Coyne & Ehrenreich, 2005; Hayes, 2004; Wicksell & Greco, 2008). Exploring how psychological events function rather than how to change their content is an important component of ACT (Hayes, 2004). ACT aims for patients to try activities and to consider new ways of thinking about behavior patterns (O’Brien, Larson & Murrell (2008).

Three concepts that are important to the theory of ACT are: cognitive fusion, experiential avoidance, and values. Cognitive fusion is a process in which an individual believes that his thoughts or emotions are accurate descriptions of reality. ACT defines many thoughts, feelings, and memories as automatic phenomena that have limited meaning. If an individual has a negative thought about himself cognitive fusion occurs if
the thought is interpreted as reflecting reality. *Cognitive defusion* allows one to understand that a thought is only a thought and it does not have the power to narrow behavior (Greco et al., 2005; O’Brien et al., 2008). Mindfulness exercises can help increase cognitive defusion in that practice allows one to observe thoughts and decide how to react, rather than react automatically (Hayes, 2004). The practice of mindfulness views thoughts as phenomena that occur in the world rather than as realities that structure the world.

The second concept important to the theory of ACT is *experiential avoidance*. This is defined as an unwillingness to experience private events, and attempting to manage or control them by changing their content, rate of recurrence or contexts in which they are experienced (Greco et al., 2005; O’Brien et al., 2008.). Experiential avoidance is effective in some circumstances, like in using distraction for children during medical procedures, but according to ACT, over use has a negative effect on living a healthy life.

A third concept in ACT is *values*, which are often described as valued goals or valued life directions (Dahl & Lundgren, 2006; Hayes, 2004). ACT therapists support patients in identifying what is important to them such as participating in activities (Hayes, 2004). The process of identifying valued goals is meant to provide positive reinforcement for participation in therapy. For patients with pain, engaging in ACT involves moving in valued directions despite the presence of difficult thoughts and feelings about pain (Dahl & Lundgren, 2006).

*Acceptance Research in Adults with Chronic Pain*

Several studies report positive results for the use of acceptance in treatment for adults with chronic pain (Vowles, McCracken & Eccleston, 2008; Vowles, McCracken &
Eccleston, 2007; McCracken, Vowles & Gauntlett-Gilbert, 2007). In Vowles et al. (2007, 2008), acceptance was introduced as part of a treatment protocol that was consistent with Acceptance and Commitment Therapy (ACT). Vowles et al. (2007) reported that changes in acceptance of pain for adults with chronic pain accounted for significant changes in variances of outcome variables measuring depression, anxiety, and disability in physical and psychosocial areas. In another study of adults with chronic pain, acceptance was found to significantly reduce the impact of a dysfunctional style of coping on physical and psychosocial functioning (Vowles et al., 2008). The dysfunctional style of coping was catastrophizing, which has been associated with a more distressing experience of pain. Vowles et al. (2008) reported that greater acceptance was associated with better functioning (p.140). Acceptance-oriented coping responses compared to control-oriented coping responses were also found to be associated with better functioning over time (McCracken, Vowles, & Gauntlett-Gilbert, 2007). In studies by Vowles et al. (2007, 2008) the ACT based intervention program was described as a group format, that lasted approximately 6 hours per day, and that included physical conditioning, mindfulness practice, and values clarification.

McCracken et al. (2007) evaluated the role of control oriented and acceptance oriented coping responses in a sample of 120 adults using a prospective design. Data analysis identified four patterns of response to pain: pain management, pain control, help seeking and activity persistence. Among the factors, activity persistence was found to be associated with better functioning over time, and pain control was reported to play an unhelpful role in coping and functioning (McCracken et al., 2007). Activity persistence
was described as continuing activity while acknowledging that pain was present. Pain control referred to attempts to change or eliminate pain (McCracken et al., 2007).

Interventions for pediatric chronic pain

The main areas of treatment that will be reviewed are: medical treatments including pharmacological options (Anderson & Palmer, 2006; McGrath, 2005; Walker, 2008) and physical therapy (Lee et al., 2002); therapies within the category of complementary and alternative medicine (CAM) (Bursch et al., 1998; Eccleston et al., 2002; Lin, Lee, Kemper & Berde, 2005; Tsao, Meldrum, Kim, Jacob, & Zeltzer, 2006; Tsao et al., 2005) including music and dance/movement (DMT) (Goodill, 2005; Loewy, MacGregor, Richards & Rodriguez, 1997). The areas of ACT for pediatric chronic pain (Wicksell, Melin, Lekander & Olsson, 2009; Wicksell, Melin, & Olsson, 2007) and mindfulness for pediatric chronic pain (Thompson & Gauntlett-Gilbert, 2008) are also reviewed.

Medical Treatments

Medical treatments for pediatric chronic pain are grouped into pharmacological treatments and physical therapy interventions.

Pharmacological treatments

Studies and reviews of pharmacological treatments for pediatric migraine, neuropathic pain and musculoskeletal pain were identified (Anderson & Palmer, 2006; Dadure et al., 2005; Damen et al., 2005; Grazzi et al., 1998; Golden et al., 2006; Rusy et al., 2001).

Results from a systematic review of controlled trials of pharmacological interventions for headache and migraine pain in children reported that acetaminophen,
ibuprofen, and nasal spray sumatriptan were effective (Damen et al., 2005). Damen et al. reported that among oral analgesics, acetaminophen and ibuprofen, compared to placebo, demonstrated a significant reduction in headache; among non-orally administered analgesics, nasal spray sumatriptan compared to placebo also demonstrated a significant reduction in headache. Damen et al. (2005) also reported that there was no significant difference in improvement of headache between other oral triptan medications and placebo. In a narrative review of common pharmacological therapies for migraine and tension-type headache, Grazzi et al. (1998) reported that the most commonly used drugs for mild to moderately severe migraine episodes were acetylsalicylic acid (ASA) and the analgesic, paracetamol. Grazzi et al. (1998) also cited two studies that reported contrasting results for different forms of sumatriptan: subcutaneous sumatriptan was reported effective, while oral sumatriptan was not. In a review of non-epileptic uses of antiepileptic drugs in children and adolescents, Golden, Haut & Moshe (2006) identified several studies that found a significant improvement in headache frequency after preventive use of the anti-epileptic valproate.

Treatment of neuropathic pain was addressed in reviews (Anderson & Palmer, 2006; Golden et al., 2006), case reports (Rusy et al., 2001; Wheeler, Vaux, & Tam, 2000), and in a small study (Dadure et al., 2005). In two different case reports, gabapentin, brand name Neurontin®, reportedly improved pain in 3 pre-adolescent children with phantom limb pain (PLP) (Rusy et al., 2001) and in a 9 year old with reflex sympathetic dystrophy (RSD) (Wheeler et al., 2000). Gabapentin is an anti-epileptic drug commonly used as an adjuvant analgesic for chronic pain. In a group of 3 children with PLP, use of gabapentin in combination with amitryptaline or transcutaneous electrical
nerve stimulation (TENS) resulted in pain cessation within one month of treatment (Rusy et al., 2001). Gabapentin alone provided relief of symptoms of RSD in a patient with left lower extremity pain (Wheeler et al., 2000). In a study of 13 children with complex regional pain syndrome (CRPS) who had not responded to conventional treatment, continuous peripheral nerve blocks (CPNB) were reportedly successful in eliminating pain in 12 of the 13 participants (Dadure et al., 2005). Limitations of Dadure et al.’s study was lack of a control group and a small number of participants. Dadure et al. stated that the success of CPNB’s supported other aspects of treatment such as intense physical therapy, and psychotherapy. In a review of developments in pharmacological management Anderson and Palmer (2006) included their own clinical opinion that the administration of a regularly timed oral analgesic, in this case an opioid medication, plus a tricyclic antidepressants (TCA), were helpful for managing non-specified neuropathic pain. (Anderson & Palmer, 2006). In a review and discussion about neuropathic pain in children, Ingalmo & Fumagalli (2004) stated that among the possible types of nerve blocks, sympathetic blocks for CRPS and neuropathic pain have been used for a longer period of time than others. Wilder (as cited in Ingalmo & Fumagalli, 2004) stated that sympathetic nerve blocks are used for patients who are unable to participate in physical therapy, who have interfering side effects from other medications, or who have severe pain that is not relieved by other medications (Merskey, & Bogduk,1994; Wilder, 1996 as cited in Ingalmo & Fumagalli, 2004). The use of sympathetic nerve blocks in children is not universally advocated within the larger community of pediatric pain providers.

A study of multiple pharmacotherapy treatments in children with musculoskeletal pain resulted in mixed success (Clinch & Eccleton, 2009). The range of medications
used for the broad category of musculoskeletal pain was stated as: tricyclic anti-depressants, NSAIDS, opioids, anti-convulsants and glucocorticoids (Clinch & Eccleston, 2009). For localized muscular pain, sympathetic blockade (Mailis & Furlan, as cited in Clinch & Eccleston, 2009) and botulinum toxin injections (Gordon, as cited in Clinch & Eccleston, 2009) have been used. Kimura, Walco, Sugarman, Conte & Schanberg (2006) conducted a survey assessing the practices of pediatric rheumatologists who treated children with juvenile idiopathic arthritis (JIA). Results of Kimura et al.’s survey were: 1) 77.3% of rheumatologists reported that despite use of arthritis medications, many children still experienced pain, 2) there is a lack of consensus among practitioners about the use of opioids given the drugs’ potential for addiction and other side effects, and 3) physicians’ perceived knowledge of medications had a significant effect on their likelihood to prescribe (Kimura et al., 2006). Traditional treatment of children with arthritis has reportedly included increasing doses of non-steroidal anti inflammatories (NSAIDS) and disease-modifying anti rheumatic drugs (DMARDs) such as methotrexate, and use of corticosteroids for instances of acute pain and pain control (Schanberg & Sandstrom, as cited in Anthony & Schanberg, 2003). Kimura et al. (2006) showed that 59.6% of respondents disagreed with the use of opioids to treat pain in children with JIA which was not alleviated by other medications. The main concern cited was addiction and dependence (Kimura et al., 2006). In discussing the broad problem of under treatment of pain, Popenhagen (2006) argued that the main reason physicians do not prescribe opioids to pediatric patient with chronic pain is fear of addiction. Popenhagen (2006) points out that another problem related to prescribing medication for children with
chronic pain is a disparity between outward appearance and level of pain, such that a child’s behavior may be normal but their pain rating may be severe (Popenhagen, 2006).

A repeated recommendation for future studies of pharmacological treatments in pediatric patients with chronic pain was the need for more research, in particular randomized controlled trials (Anderson & Palmer, 2006; Dadure et al., 2005; Damen et al., 2005; Golden et al., 2006; Kimura et al., 2006; Rusy et al., 2001). In future studies it was suggested that outcomes other than clinical improvement, such as quality of life, be included (Damen et al., 2005).

Physical Therapy

Physical therapy was described as part of a multidisciplinary approach to chronic pain management in research on children with chronic pain (De Blecourt, Preuper, Vander Schans, Groothoff & Reneman, 2008; Lee et al., 2002; Stanton, Malcolm, Wesdock & Singsen, 1993). Physical therapy (PT) was also discussed as an essential part of an interdisciplinary or multidisciplinary approach to managing chronic pain in reviews of management of child and adolescent chronic pain (Clinch & Eccleston, 2009; Eccleston & Eccleston, 2004; Wilder, 2006).

Lee et al. (2002) evaluated the impact of PT frequency on outcome within a structured program of PT and CBT, for children ages 8 to 17, who had CRPS. Using a prospective, randomized, single-blind methodology, Lee et al. reported significant improvements in five measures of pain and function collected for two groups, a low frequency (1 visit per week) and a high frequency (3 visits per week) group. Measures of pain and functioning were: pain intensity and pain affect, assessed with the 10 cm visual analogue scale (VAS); and a standardized physical therapy assessment including two
quantitative PT outcome measures. Standardized physical assessments included gait impairment and stair climbing scores (Lee et al., 2002). The PT program which included cognitive behavioral therapy components was individualized for all participants in both groups. This individualized aspect allowed participants to receive therapy from multiple disciplines: CBT including relaxation and biofeedback; transcutaneous electrical nerve stimulation (TENS) and massage. Reported results stated that there was no significant difference found between the groups’ scores, suggesting that the incorporation of PT, rather than the frequency of PT, may have played a larger role in outcome. A limitation of Lee et al. (2002)’s study was that participants were restricted to children who had not had previous PT or nerve blocks for pain.

Improvements in pain and functioning within a multidisciplinary approach were also reported by De Blecourt et al. (2008) and Stanton et al. (1993). De Blecourt et al. (2008) evaluated improvement for children with chronic musculoskeletal pain enrolled in a 3 month inpatient multidisciplinary program. Stanton et al. (1993) reported that an inpatient diagnostic and rehabilitation program which included physical therapy, rheumatology, psychology and pharmacological options and supported recovery in daily activities for children with reflex sympathetic dystrophy (now referred to as complex regional pain syndrome or CRPS). De Blecourt et al.’s program emphasized the biopsychosocial approach to chronic pain treatment and included physical therapy, occupational therapy, psychology sessions for participants, and counseling with a social worker for parents. De Blecourt et al. (2008)’s program included daily physical therapy focused on working toward individual goals set by each patient. Reported results of De Blecourt et al. (2008)’s program were a significant improvement in motor abilities for
94% of participants. Motor activities included bicycling, walking and sports. A significant improvement in global assessment scores that were self-reported by patient and physician was also reported. Global assessment scores measured physical functioning and psychosocial well being. Limitations of De Blecourt et al.’s study included lack of a control group and assessors who were neither blinded nor independent (De Blecourt et al., 2008). Stanton et al. (1993) evaluated improvement in functioning of 36 children with RSD, and reported a resolution in pain for 69% of participants. Stanton et al. (1993) defined resolution as total resumption of age-appropriate activities. Stanton et al. (1993) described PT within their rehabilitation program as: twice-daily including multiple modalities such as progressive weight-bearing, passive and/or active range of motion exercises, progressive ambulation, heat and/or cold applications, transcutaneous electrical nerve stimulation and biofeedback. Physical therapy modalities were chosen and combined to meet individual needs (Stanton et al., 1993). The average time for recovery was approximately 9 months.

Eccleston and Eccleston (2004) discussed the success of an interdisciplinary program based on a cognitive behavioral model of treatment. Participants attended 2.5 hours of PT daily which was incorporated into an overall normalizing approach to living with chronic pain. PT’s were part of a team that included occupational therapists, psychologists, a pediatric rheumatologist and a pain nurse, and parents were part of the treatment protocol (Eccleston & Eccleston). Interdisciplinary, compared to multidisciplinary, meant that each team member understood the others’ roles, as well as shared information from individual sessions (Eccleston & Eccleston, 2004). An important role of the physical therapist in the rehabilitation of children and adolescents with chronic
pain was introducing and supporting the idea that movement was possible even with pain (Eccleston & Eccleston, 2004).

A focus on exercise therapy was also identified within the physical therapy and chronic pain literature. Sources reported that PT played a central role in treating children with chronic arthritis (Klepper, 1999), CRPS (Finiss, Murphy, Brooker, Nicholas & Cousins, 2006; Sherry et al. 1999) and low back pain (Fanucchi, Stewart, Jordaan & Becker, 2009). Klepper (1999) reported results of an 8 week physical conditioning program based at an exercise center, and including home practice. The program involved participating in an exercise program two times per week. Results included significant improvement in the articular severity index (ASI), joint count, and in a 9 minute run-walk test. Klepper’s study indicated that children with juvenile rheumatoid arthritis (JRA) were able to participate in aerobic activity without an increase in arthritis symptoms. In addition, analysis of visual analog scale (VAS) scales of participants collected before and after the exercise program, indicated that most participants did not experience greater pain during the program (Klepper, 1999). Limitations of the study were its small size (N=25) and mixed severity level in participants.

Research focusing on PT as treatment for children and adolescents with complex regional pain syndrome (CRPS) was also identified (Finiss, Murphy, Brooker, Nicholas & Cousins, 2006; Sherry et al., 1999; Stanton et al., 1993). CRPS is categorized by the international association for the study of pain (IASP) in two types: Type I (Reflex Sympathetic Dystrophy) and Type II (Causalgia) (Merskey & Bogduk, 1994). In children, CRPS Type I is more commonly seen than Type II. Diagnostic criteria for CRPS Type I is: an initiating noxious event or cause of inability to move; continuing pain
including pain due to a stimulus that is not normally painful (allodynia) or increased response to painful stimulus (hyperalgesia); and evidence at some time of edema, changes in skin blood flow, or abnormal sudomotor activity (relating to nerves that stimulate sweat glands) in the region of pain (Merseky & Bogduk, 1994). In a review of treatments for CRPS in pediatric patients, Wilder (2006) stated that lower extremity involvement is more common in child cases than adult. Diagnosis of CRPS Type I is only made if there are no other conditions identified that could account for the pain and dysfunction (Merseky & Bogduk, 1994).

CRPS II is characterized by continuing pain, allodynia or hyperalgesia after a nerve injury. Using a prospective study design, Sherry et al. (1999) evaluated an intensive exercise intervention for 103 children with CRPS Type I. Outcome measures included pain and recurrent episodes of CRPS. Reported results stated that 92% of children showed no symptoms at initial follow-up (Sherry et al., 1999). A subset of patients was followed for over 2 years and 88% remained symptom free, although 31% of the subset had had a recurrence of pain. Sherry et al. (1999) speculated that patients may have experienced an aspect of control through the design of the program, and that this contributed to positive results: the exercise program focused on one to one interaction between patient and physical therapist, on function, and was designed to be continued at home. In a clinical note, Finniss et al. (2006) called attention to the importance of introducing movement and physiotherapy early in the course of treatment for children with CRPS. Finniss et al. (2006) compared the impact of early versus late diagnosis and referral in two cases. The patient who was not treated with active mobilization and pain
management struggled with maladaptive musculoskeletal change and longer-term motor dysfunction.

**Complementary and Alternative Medicine (CAM) Therapies**

Complementary and alternative medicine (CAM) therapies were defined as therapies within the category of complementary and alternative medicine (CAM) as delineated by the National Center for Complementary and Alternative Medicine (NCCAM) (Lin, Lee, Kemper & Berde, 2005). NCCAM has grouped CAM therapies into five sub-categories: alternative medical systems, mind-body interventions, biologically-based therapies, manipulative methods, and energy therapies (Lin et al., 2005). CAM therapies reviewed in this study were delimited to the sub-category of mind-body interventions. As defined by NCCAM, mind-body interventions include: cognitive behavioral therapy, biofeedback, relaxation therapy, guided imagery, meditation, and the creative arts- art, music and dance/movement therapy.

Results from a recent systematic review of randomized controlled studies of psychological therapies for reducing pain and disability and improving mood in children and adolescents with recurrent, episodic or persistent pain were considered in addition to findings of individual studies (Eccleston, Palermo, Williams, Lewandowsk & Morley, 2009). Eccleston et al. (2009) defined psychological therapies as: relaxation, hypnosis, coping skills training, biofeedback, and cognitive behavioural therapy (Eccleston et al.). This list overlaps with therapies defined under the mind-body category by NCCAM, which are the CAM therapies included in this study. Broad results of the systematic review stated that psychological treatments are effective in pain control for children with headache and benefits appear to be maintained, and that musculoskeletal pain and
recurrent abdominal pain (RAP) may be improved with psychological treatments (Eccleston et al., 2009). Eccleston et al. (2009) concluded that among the therapies examined, there is good evidence that both relaxation and cognitive behavioral therapy are effective in reducing the severity and frequency of chronic headache, recurrent abdominal pain, and fibromyalgia (Eccleston et al.). Eccleston et al. (2009) also concluded that not enough studies have measured the effects of psychological treatments on reducing disability increasing activity levels, nor measured the effects of psychological therapies on mood. The most commonly described treatments among qualifying studies in the systematic review were relaxation training and/or biofeedback for headache (Eccleston et al., 2009).

Cognitive behavioral therapy (CBT) for children with chronic pain was described as a method that included teaching coping skills, such as strategies for handling increased pain, and providing education about pain (Anthony & Schanberg, 2003). McGrath & Hillier (2002) described three categories of techniques for use of CBT with children: cognitive, physical and behavioral.

Biofeedback (BFB) was categorized as a type of cognitive behavioral treatment. BFB is a process in which physiological data such as heart rate or body temperature is made accessible to a patient so that he can develop conscious control of these functions (Grazzi et al., 1998). Tsao & Zeltzer (2005) stated that most studies of biofeedback used thermal biofeedback (TBF) or electromyographic biofeedback (EMG-BFB). TBF involves feedback from a thermistor placed on fingers and EMG-BFB relies on feedback from electric impulses generated by a targeted muscle such as the forehead muscle (Tsao & Zeltzer, 2005). Research has indicated that biofeedback may be effective in managing
pediatric headache pain—both tension-type and migraine headache (Grazzi et al. 1998; Tsao & Zeltzer, 2005).

The results of a meta analysis of interventions for pediatric migraine indicated that the combination of biofeedback and progressive muscle relaxation was significantly more efficacious than other behavioral approaches or pharmacological treatment. In this analysis biofeedback was ranked as possibly efficacious based on standards developed by the American Psychological Association (APA) (Herman, Kim, & Blanchard, 1995). Biofeedback was rated as possibly efficacious rather than efficacious because there is no evidence that biofeedback is more effective than a placebo or alternative interventions (Tsao & Zeltzer, 2005). Tsao & Zeltzer reported that there is at least one study about the efficacy of TBF as a treatment for pediatric migraine that is difficult to evaluate because TBF was part of a treatment package that included other components like progressive muscle relaxation.

The other intervention areas within the mind-body category of complementary and alternative medicine treatments (Lin et al., 2005) were identified as progressive muscle relaxation, guided imagery, and meditative breathing. Progressive muscle relaxation, guided imagery, and meditative breathing were described as self-regulatory techniques (Bursch, Walco & Zeltzer, 1998). These interventions all aimed to use a predictable process to alter a child’s pain experience (Bursch et al, 1998). Review of research on the use of the terms “hypnosis” or “guided imagery” to treat pediatric pain indicated that a number of terms were used to describe similar practices and that the meaning of the terms within the literature was inconsistent (Tsao & Zeltzer, 2005, p.154).
Common terms used were guided imagery, hypnosis, hypnotherapy, and imagery (Tsao & Zeltzer, 2005).

In a review of studies that examined the use of relaxation/self-hypnosis/guided imagery for recurrent pediatric headaches, Holden, Deichmann, & Levy (1999) concluded that there was enough evidence to classify relaxation/self-hypnosis/guided imagery as effective for recurrent pediatric migraine and tension headaches. Challenges faced in compiling results from Holden et al.’s review were a range in quality of study design and inconsistency in the meaning of the terms relaxation, self-hypnosis, and guided imagery.

Therapeutic interventions in which two or more techniques were used together included treatment for children with arthritis and recurrent abdominal pain (RAP). For example, in a small scale study, progressive muscle relaxation, guided imagery, and meditative breathing were combined in an intervention for children with Juvenile Rheumatoid Arthritis (JRA) (Walco, Varni & Ilowite, 1992). Results of this combined intervention were reported to be a reduction in the level of pain in both clinical and other settings (Walco et al., 1992). Relaxation and guided imagery were also used together as a treatment for children with recurrent abdominal pain (RAP). In a pilot study of children aged 5 to 18 who experienced RAP, deep abdominal breathing and muscle relaxation were used in combination with encouraging imagination, to alter the experience of pain (Ball, Shapiro, Monheim, & Weydert, 2003). Ball et al. (2003) reported a significant decrease in number of days that participants experienced abdominal pain between the start of the study and one month post intervention.
Acceptance and commitment therapy (ACT) for pediatric chronic pain

Research on ACT for children

A limited amount of research examining acceptance-based interventions for children with chronic pain was identified. Improvements in functioning were reported in studies assessing acceptance and commitment therapy (ACT) based interventions for adolescents with chronic pain (Wicksell, Melin, Lekander & Olsson, 2009; Wicksell, Melin, & Olsson, 2007). Wicksell et al. (2009) conducted a randomized controlled trial to evaluate the effectiveness of an ACT-based intervention on primary measures such as functional disability, beliefs about pain, and health related quality of life, and secondary measures including depression, fear of re-injury, and pain intensity. Thirty-two children (N=32) between ages 10 and 18 were randomized to two groups: one receiving an ACT-based intervention and the other receiving a multidisciplinary treatment (MDT) that included a pharmacological agent (amitriptyline). Throughout treatment participants were encouraged to notice and accept thoughts without acting on them, and to try activities between sessions. Parents participated in 1 to 2 sessions of the same protocol. Results indicated significant improvement in all of the primary outcome measures for the ACT group. The MDT group also improved to a significant degree for all outcome measures except one (physical component scale of health related quality of life measure). The ACT group showed significant improvements in 4 out of 5 secondary measures, while the MDT group showed significant improvement in 2 measures. Because both groups improved in most measures, the level of improvement between the ACT and MDT groups was calculated. Results showed that the ACT group’s improvement was significantly larger than the MDT group’s improvement on: the Pain and Impairment
Relationship Scale (PAIRS), a scale of kinesiophobia or fear of re/injury; pain intensity; and pain related discomfort. The PAIRS scale assesses patients’ beliefs and attitudes regarding pain or ability to function despite discomfort. Psychometric properties of formal instruments for outcome measures were reported to be satisfactory, adequate or established. The informal pain-related discomfort measure was stated to have high internal consistency. Limitations included the small sample size which increased the risk of a type-II statistical error wherein a real difference between comparison groups may be judged insignificant. The use of multiple outcome measures increased the risk of a type-I statistical error, in which the analysis of a large number of variables may have resulted in significant differences that were actually a result of chance. Validity of the study could be increased by the inclusion of instruments other than self-report scales. Therapist competence and adherence to protocol were not evaluated, and may have impacted study reliability.

Results of another study assessing an ACT-based intervention for adolescents with chronic pain reported improvements in measures including pain intensity and pain interference (Wicksell, Melin, & Olsson, 2007). This was a pilot study with 14 participants, aged 13 to 20. The treatment protocol included assessment of participants’ values and discussion of the concepts of acceptance and cognitive fusion (Wicksell, et al., 2007). Data from self-report measures of pain intensity and pain interference showed that no patient reported an increase in pain intensity despite an increase in participation in activities (Wicksell et al., 2007). Limitations of Wicksell et al.’s study included a small number of participants and lack of a control group. Intervention components were individualized rather than standardized, which could be a limitation or strength depending
on analysis perspective. In both the RCT (Wicksell et al., 2009) and pilot study (Wicksell et al., 2007), outcome data collected at the close of treatment and at two later points (approximately 3 and 6 months), showed sustained improvement in outcome measures.

Another application for acceptance in children was the treatment of anxiety and anxiety disorders. Greco, Blackledge, Coyne & Ehrenreich (2005) described how acceptance, the principles of ACT, and mindfulness were used to help children cope with anxiety. Greco et al.’s treatment intervention included collaboration between therapist and child to identify important parts of the child’s life and to review guiding principles of ACT such as the detriments of efforts to control anxiety, cognitive fusion, and mindfulness meditation techniques. In teaching concepts like cognitive fusion, metaphors were often used.

**Mindfulness for pediatric chronic pain**

*Research on mindfulness practice for children*

The use of mindfulness practice as a treatment intervention for children with chronic pain was also reviewed. Most published research on mindfulness involved adult participants. In a review of the use of mindfulness in research with children, Thompson & Gauntlett-Gilbert (2008) reported that most research including mindfulness and children is compromised by methodological problems such as lack of standardized treatment protocols and minimal number of participants. Examples of research using mindfulness as a therapeutic intervention for children were identified as: mindfulness meditation for the treatment of epigastric pain (Ott, 2002), as part of a treatment approach for anxiety (Greco, Blackledge, Coyne & Ehrenreich, 2005; Semple, Reid & Miller, 2005), and as a component of stress reduction programs for school aged children (Wall, 2005).
As an application for pain, Ott (2002) described the case of a 9 year old girl who was taught mindfulness meditation skills to help manage nausea and epigastric pain caused by gastroesophageal reflux (GER). The intervention included parent and participant receiving mindfulness meditation instruction, and the participant meditating for 10 minutes or more per day (Ott). The participant was introduced to several mindfulness related techniques such as the body scan, mindful eating, and walking meditation. The body scan and mindful eating techniques were based on techniques of the same name developed by Kabat-Zinn (1990) for his mindfulness based stress reduction program for adults. Post-intervention results were reported as an improvement in the participant’s pain condition, a decrease in required medication and an improvement in sleep quality (Ott, 2002). Limitations of the study were: a case report methodology which limited generalizability, and unspecified time frame of the intervention and collection of outcome results. Without a standardized protocol reliability of the study was compromised. Another limitation was lack of a control for the participation of the parent tied to the question of what part parental participation played in the outcome of the study.

Semple, Reid, & Miller (2005) described an intervention for five participants, 7 to 8 years of age, based on an adaptation of 2 adult mindfulness programs—mindfulness based stress reduction (MBSR) and mindfulness based cognitive therapy (MBCT). The objective of the study was to assess whether techniques that enhance attention could be useful in treatment of anxiety in children (Semple et al., 2005). Five participants (N=5) were enrolled in a 6 week program which involved 45 minutes of meditation in a small group format one time per week at school. The intervention consisted of mindfulness practice that was integrated into simple breathing, walking, gustatory, visual, auditory,
olfactory, and tactile exercises. Two self-report measures and a teacher report instrument were use for data collection. Reported results were general instead of specific due to methodological problems. Scores from the self-report measures were not analyzed or reported because participants reported experiencing little anxiety at the start of intervention. Scores from the teacher report form (Child Behavior Checklist-Teacher Report Form (CBCL) indicated a trend towards fewer problem behaviors. Improvements were reported for all participants in at least one area of the CBCL including academics, internalizing, or externalizing problems. Limitations of the study included a small number of participants (N=5), and third party outcome data was not blinded (teachers’ expectations of the effects of relaxation could have impacted results).

Creative Arts Therapies

Dance/Movement Therapy (DMT)

Aims of Dance/Movement Therapy (DMT) for children with medical conditions included: providing support for emotional expression and recognition of changes in the body (Goodill, 2005), supporting play as a gateway to exploration of painful emotions (Mendelsohn, 1998), and becoming conscious of one’s physical self while experiencing pain (Christie, Hood, & Griffin, 2006). Goodill described a case study by Kasovac (personal communication, as cited in Goodill) using DMT with a school-aged patient who had migraine headaches and fibromyalgia. The DMT intervention included risk taking with balancing, and encouragement of expression including breath work. Results included the patient’s return to a pre-pain level of activity (Goodill). In discussing this case Goodill (2005) emphasized the patient’s use of imagination and improvisation to think about a future, and her parent’s belief in her ability to recover. A limitation of the
case study format was decreased reliability and generalizability. The use of DMT for adolescents with chronic pain as part of a rehabilitation program (Christie et al. 2006), and as a treatment for chronically ill children in a children’s hospital (Mendelsohn, 1998) were also reviewed. Christie et al. (2006) stated that patients were encouraged to use their body to communicate thoughts and emotions as a means of heightening awareness of their pain experience. Mendelsohn (1998) emphasized that DMT offers different levels of engagement to children. While some patients are able to use their body for expression, other children are able to participate at a symbolic level using a minimal amount of movement and three dimensional accessories that facilitate expression such as scarves (Mendelsohn, 1998).

Loman (1998) described a developmental model of DMT that described children’s instinctive ability to use their body to communicate. Children’s ability to move was related to infants’ pre-verbal ability to speak with their body (Loman, 1998).

Music Therapy (MT)

Music therapy has been used as a treatment intervention for chronic pain and procedural in children (Loewy, MacGregor, Richards & Rodriguez, 1997; Mathur, Duda & Kamat, 2008; Whitehead-Pleaux, Zebrowski, Baryza, & Sheridan, 2007). An example of the use of music therapy as an intervention for procedural pain was found in a study that evaluated the impact of music therapy on pediatric burn patients during nursing procedures (Whitehead-Pleaux, Zebrowski, Baryza, & Sheridan, 2007). Whitehead-Pleaux et al. collected both qualitative and quantitative data from 9 participants, ages 7 to 16. Results included a finding of a significant difference between measures of level of engagement and behavioral distress: higher levels of engagement with MT were related
to lower levels of behavioral distress. However, the relationship between these variables was reportedly only significant for children 15 years and older. The conclusion drawn from both quantitative and qualitative results was that pediatric patients did not experience less anxiety, or report less pain, during medical procedures when MT was provided. But, MT was reported to help participants in coping with pain through its ability to distract patients from the procedures.

In narrative form, Loewy et al. (1997) described the use of two interventions for children with chronic pain. In both interventions the child’s active involvement was described as a healing factor. One intervention called “integration” encouraged patients to feel their current bodily state by focusing on breath, heart rate, emotional intention and sensations of pain (Loewy et al., 1997, p. 48). It was noted that integration was based on a different approach than distraction from pain. The second intervention involved creating a story about pain using musical accompaniment, with different sounds as symbols for different affective aspects of the story. Loewy et al. (1997) stated that in her clinical experience working on a metaphorical level with children helped them to identify emotions that were part of their experience of chronic pain.

Art Therapy

*Theories and Practices of Art Therapy*

*Theories of Art Therapy*

Art therapy began as a practice in the 1940’s and became a recognized profession in the 1960’s (Junge, 1994). Well-known pioneers of art therapy who wrote about their work are: Margaret Naumburg, who outlined an *art psychotherapy* approach, and Edith Kramer, who outlined an *art as therapy* approach (Rubin, 1999; Wadeson, 1987).
Although each approach emphasized different benefits, in art therapy practice aspects of both approaches are often present (Wadeson, 1987).

Art psychotherapy is informed by psychoanalytic theory and practice, and supports spontaneous, unstructured art making and free association to images (Wadeson, 1987). Components of art psychotherapy emphasized by Naumburg (1966) are the unconscious projection of images within the therapeutic relationship, the phenomenon of transference, and the idea that art can be a launching point for verbal exploration. Naumburg intended for patients to work to interpret their own images, a process parallel to the verbal psychoanalytic process. Like the verbal psychoanalytic process, visual information that emerges in the therapeutic process is thought to be connected to dreams, fantasies, fears, conflicts, and memories (Naumburg, 1966). In art psychotherapy the focus is on the art process rather than the visual quality of the artwork (Junge, 1994).

The art as therapy tradition asserts that the process of creating art is healing, and that healing can occur without verbalization (Wadeson, 1987). The art as therapy approach is concerned with the quality of the art product, and considers the quality of the product to be linked to the success of therapy (Rubin, 1999). The art as therapy approach conceptualizes the creative process as one that facilitates an integrative experience for the individual (Wadeson, 1980). The meaning of integrative experience is explained by Rubin (2005)’s description of the therapy approach: an experience in which conscious and unconscious aspects of self are satisfied with unacceptable impulses channeled into creative activity and the ego benefiting from the production of an aesthetic object.
Practice of Art Therapy

The practice of art therapy varies depending on a combination of factors: the setting, the patient or client, the theoretical orientation of the therapist, and the therapist’s competencies with different materials (Wadeson, 1980). Examples of practice include long term insight-oriented, short-term crisis intervention, life review in geriatric settings, group art therapy practiced in hospitals and schools with children, and family art therapy.

Clinical Art Therapy as practiced by Helen Landgarten provided an example of an application of art therapy. Landgarten influenced a trend towards defining an art psychotherapist as capable of functioning as a primary therapist, and coined the term “clinical art therapy” (Junge, 1994, p.190). Landgarten’s theoretical stance was psychodynamic, consistent with Freud’s definition of personality, and was influenced by family systems theorists (Junge, 1994). Landgarten’s model of practice included a range of settings such as outpatient clinics, psychiatric hospitals, and rehabilitation centers. The application of her psychodynamic approach included encouraging patients’ interpretation of their own work and understanding patients’ personal symbolism; Landgarten viewed verbal interaction favorably as a means of discovering unconscious material and emphasizing the patient’s role as partner in the therapeutic process (Junge, 1994).

Art Therapy with Children

The art therapy process provides a way for children to explore emotional conflict within a safe environment (Landgarten, 1981; Rubin, 2005; St. Clair Pond, 1998). The therapeutic relationship was described as a safe place in which to explore wishes and fears that a child is unable to share with other adults (Levick, 1983; Wadeson, 1980). Vasarhelyi (1990) stated that images created by children within a contained therapeutic
space often revealed unconscious themes that are in other environments inaccessible. Rubin (2005) described the art therapy process as providing a “framework for freedom” (p.19). One way in which otherwise inaccessible emotions may be accessible is through an experience of freedom and structure. Working within a framework for freedom was reported to be a psychologically organizing experience as it allowed spontaneous creative work within defined structure (Rubin, 2005). An additional aspect of creating a safe environment and building a therapeutic relationship included the therapist’s projection of positive expectations and empathy (Rubin, 2005).

The art therapy process also supported expression of emotion through metaphor. In a case study of a 10 year old girl with an unidentified illness, Vasarhelyi (1990) described how the patient used art expression to create metaphors for frightening and confusing experiences. In a review of the benefits of art psychotherapy for latency age children, Landgarten (1981) stated that metaphor served as a safe method for children to express emotions because of its distancing factor. A visual metaphor for a feeling provided a symbol that could represent multiple experiences (Landgarten, 1981). Metaphor also provided a means through which children were able to express fantasies, worries, and feelings in a socially appropriate way (Landgarten, 1981).

An example of how art therapy helped a child explore complex emotions was provided by Wadeson (1987). Within the structure of an art therapy relationship, a 6 year old child drew an image that helped him confront both his identification with, and fear of, aggression (Wadeson, 1987). In creating a picture of an angry looking whale the boy explored different emotional positions. Wadeson noted that the boy’s self-criticism dissipated when he invested energy in expressing aggression through his image.
For school aged children, participation in group art therapy was a way to support social interaction and offer a corrective emotional experience for participants (Landgarten, 1981; Prokoviev, 1998). Methods that appealed to the developmental level of school-aged children were: providing clear objectives when group began, using task and theme oriented projects, and allowing the art to serve as a means of communication between group members (Landgarten, 1981). In describing the practice of running art therapy groups for children, Prokofiev (1998) explained that there was a need to find a balance between limit setting and the freedom to create. Because children regressed more quickly than adults, the art therapist needed to be more active and provide more structure than she would have in working with adults (Prokofiev, 1998).

An example of how art therapy helped a child change behavior was provided by Landgarten (1981). The art therapy process contributed to behavior change by providing a concrete visual reminder of a goal and by facilitating the child’s verbal commitment to group members. In a case study of two 9 year old students who participated in an eight week art therapy social skills group at school, St. Clair Pond (1998) reported that: making and discussing artwork improved participants’ ability to verbalize and share emotions in a group context.

The art therapy process was also described as a process of mastery in which children discovered and organized their own story (Landgarten, 1981; Malchiodi, 2003). Stimulus cards (Silver, 1989) and the Draw-A-Story Game (Gabel, 1984) were both been used as methods for this purpose. Stimulus cards provided pictures from various categories that were chosen as starting points for a story (Silver, 1989). The Draw-A-
Story Game was described as an interactive process in which therapist and child collaborated to build a sequence of drawings that composed a story (Gabel, 1984).

*Medical Art Therapy*

Medical art therapy is described as a specialization within art therapy that developed to address challenges faced by individuals with medical conditions. Medical art therapy was defined in 1993 by Malchiodi as: “the specific use of art therapy with individuals who are physically ill, experiencing trauma to the body, or undergoing aggressive medical treatment such as surgery or chemotherapy” (Malchiodi, 1999). Within medical art therapy, the field of pediatric art therapy includes work with children who have a range of conditions such as cancer (Favaro-Scacco, 2001), asthma (Gabriels, Wamboldt, McCormick, Adams & Taggart, 2000), traumatic burn injuries (Russell, 1995), other traumatic physical injuries (Chapman, 2001), Cystic Fibrosis (Fenton, 2000), and bipolar disorder (Henley, 2007).

For hospitalized children the art therapy process has been reported to offer a means of control and empowerment (Councill, 2003; Fenton, 2000; Prager, 1995; Wadeson, 2000). Creative work involves putting forth effort towards a desired outcome, and includes decision making about media and other components of art therapy (Councill; Fenton; Prager). Control or a decreased sense of helplessness, and a reduction in anxiety was also reported in connection with art therapy. Results of a quasi-experimental study using an art therapy intervention that included supporting children during and after a painful procedure (lumbar puncture or bone marrow aspiration) suggest that participating in art therapy helped children to recover a sense of control and calm (Favara-Scacco, Smirne, Schiliro & DiCataldo’s, 2001). In this study of 32 children with
leukemia, results indicated that those who participated in an art therapy intervention showed better adherence in subsequent procedures and decreases in anxiety and negative behaviors as compared to a control group (Favara-Scacco et al., 2001). Limitations of Favara-Scacco’s study included results based on therapists’ perceptions of changes in anxiety levels and negative behaviors rather than on scores of validated psychometric measures. The range of components used included visual imagination, medical play, structured drawing and free drawing. The study design, however, left it unclear as to which components may have been more or less beneficial for participants.

Medical art therapy provides a means of supporting patients’ defenses and enabling expression of frightening emotions (Councill, 2003; Fenton, 2000; Sundaram, 1995; Wadeson, 2000). Methods of supporting defenses in art therapy included making art with a patient, which reduced performance anxiety (Sundaram, 1995), and using materials that are simple to work with and supporting completion of a finished product in a limited time (Wadeson, 2000). Wadeson (2000) described a patient with scoliosis who experienced gratification in working with a pre-made form that accommodated her limited physical range, and provided a means with which to reconstruct her own medical experience. Wadeson (2000) reported that the art therapy process increased the patient’s understanding of her experience in the hospital and related emotions.

Experiences of mastery in art therapy were described as experiences that helped patients to better understand and cope with their condition. Councill (2003) described art therapy interventions such as creating one’s own pain scale, locating pain in body outlines and creating images to symbolize pain, as ways for children to better understand their own experience of pain. Landgarten (1981) suggested that metaphors may help
latency-aged children to better understand their own experience and emotions related to hospitalization and illness. In the context of clinical art therapy on a pediatric unit, Landgarten (1981) wrote that an intervention using drawing in sequence in a comic strip format was appealing for latency or school-aged children. Using images children were asked to tell a story about an animal or person who has undergone the same experiences as themselves (Landgarten, 1981). Metaphors were described as capable of creating a safe enough distance from difficult emotions and experiences, so that they could be explored (Councill, 2003; Henley, 2007; Sundaram, 1995; Wadeson, 2000).

In a medical setting art therapy can provide invaluable information to the treatment team and can support more effective communication between patient and staff. A patient’s artwork can communicate important information that has not been verbalized to other team members and serve as a non-verbal means of assessing developmental factors and adaptation to the hospital environment (Councilill, 2003). Wadeson (2000) stated that the therapeutic relationship in a hospital setting can also have an impact on a child's relationship with hospital staff. For example, through a series of drawings completed in art therapy, and shared with his doctor, a patient revealed anxiety about regular painful tests that he had not been able to communicate previously (Wadeson). The drawing series was of an imaginary machine that would be able to perform the function of a spinal tap, but without pain (Wadeson, 2000).

Art expression is a means of communicating feelings that are too difficult to talk about (Fenton, 2000) and is a means with which to work through trauma and psychological phases of adjustment after a traumatic injury (Chapman, Morabito, Ladakakos, Schreier, & Knudson, 2001; Russell, 1995). The Chapman Art Therapy
Treatment Intervention (CATTI) was developed as part of an outcome based art therapy project at an urban hospital’s trauma center and designed to reduce symptoms of post traumatic stress disorder (PTSD) in pediatric trauma patients (Chapman et al., 2001). The CATTI is a series of intervention steps, or questions about the trauma, which the patient responds to through drawings. Chapman et al. (2001)’s study used a prospective, randomized, cohort design (N=58). Participants were ages 7 to 17 with an average age of 10 yrs. A standardized self-report form, The Children’s Post Traumatic Stress Disorder Index, or PTSD-I, was used at pre-test and at three points post-intervention. The PTSD-I consists of 20 items designed to assess symptoms based on the diagnostic criteria for PTSD in the DSM-IV. The PTSD-I is attributed to Rodriguez, Steinberg & Pynoos (1997) (as cited in Chapman et al.). Although Chapman et al. (2001) did not report a statistically significant difference in reduction of PTSD symptoms between the control and experimental group, a reduction in all DSM IV, PTSD Criteria C (avoidance) symptoms, were reported at 1 week post intervention and sustained at one month follow-up (Chapman et al., 2001). PTSD Criteria C are related to avoidance of stimuli associated with the trauma such as efforts to avoid thoughts, feelings, people, or places associated with the trauma (DSM-IV-TR, 2000). Chapman et al. (2001) concluded that the CATTI may be effective in reducing acute stress symptoms associated with PTSD.

Pediatric Art Therapy and Chronic Pain

There is limited research involving the use of art therapy to treat children with chronic pain. A potential benefit of art therapy for children with chronic pain conditions is that it provides a nonverbal means of expressing complex emotions. Through the art therapy process children often create their own metaphors in order to express emotional
concerns or respond better to art tasks that involve metaphors rather than realism-based questions (Landgarten, 1981; Wadeson, 2000). In the case of a 6 year old girl with idiopathic chronic pain, pictures created through the art therapy process provided more information about her thoughts and perceptions than she was able to communicate through words (Palmer & Shepard, 2008). This case study also indicated that creating an external, concrete, representation helped her to understand her experience in an age-appropriate way (Palmer & Shepard). In a case history paper, Savins (2002), an art psychotherapist at a children’s hospital, reported that introducing metaphoric representations of people involved in a child’s medical care was a way to initiate communication and discuss the hospitalization experience. Savins (2002) also reported that using puppets allowed her to introduce a cognitive restructuring technique in a way that made sense to a child. A replacement for the idea that pain was a bad internal experience that needed to be corrected was the idea that pain was a message telling her to communicate what was wrong to her doctor (Savins).

Summary of Literature Review

The purpose of the literature review was to review both contextual areas and areas specific to the objective of the study and the research question. The objective of the study was to develop an art psychotherapy treatment approach for pediatric chronic pain that incorporates acceptance. The research question asked: what are the components of an approach to art therapy, incorporating acceptance, which be used as a complementary treatment for children ages 7- 12, living with chronic pain? The contextual area of pain/chronic pain provided background information for the specific type of pain that the thesis addresses. The research question of the study indicates that the art therapy
approach will be complementary to other treatments. To better understand such a
treatment context, a general range of existing interventions for pediatric chronic pain was
reviewed. The interventions reviewed in this section of the chapter included
pharmacological treatments, physical therapy interventions, complementary and
alternative medicine (CAM) therapies, and Acceptance and Commitment Therapy (ACT)
for chronic pain. Areas specific to the thesis objective were: pediatric chronic pain,
acceptance, and art therapy. A review of current research on pediatric chronic pain
provided information about the specific population considered by the thesis. The topical
area of Acceptance referenced the operational definition of the term Acceptance, and
described the sources that informed this definition. The third specific area of review was
art therapy. The review of art therapy outlined the discipline to which the proposed
treatment approach would belong, and provided a review of the specialized areas of art
therapy with children and medical art therapy. The review of the topical area of medical
art therapy for children included detailed reports of children’s participation in art therapy.
CHAPTER 3: METHODOLOGY

Design

The design of this study was a literature based study that used systematic methods of data collection, organization and analysis. Collection and organization of the data was guided by Garrard’s Matrix Method (Garrard, 2007) and data were analyzed using a grounded theory method (Strauss & Corbin, 1998). In a grounded theory method data is analyzed through a three step coding process. The results of coding were descriptive categories of data and a core category that unified the findings. In this study the descriptive categories became the components of the approach to art therapy, which satisfied the objective of the study— to develop an art psychotherapy treatment approach for pediatric chronic pain that incorporates acceptance. The identification of descriptive categories of data also addressed the research question: what are the components of an approach to art therapy, incorporating acceptance, which may be used as a complementary treatment for children, ages 7-12, living with chronic pain?

Participants

There were no human participants in this literature-based study.

Investigational Methods and Procedures

Data Collection

Collection and organization of the data were guided by Garrard’s Matrix Method (Garrard, 2007). Garrard’s matrix method provided an organizational template for data collection. Each topical area of data collection occupied its own spreadsheet, or review
matrix, which contained abstracted information from each data source (Garrard, 2007, p.108). Columns of data were arranged in the following order: Author/Title/Journal; Year of Publication; Purpose of study/source document, Methodology, Results and Summary (See Appendix B, Sample Matrix).

The data were collected by searching electronic data bases that included, but were not limited to, Psych INFO, CINAHL, Ovid Medline and PubMed. Books were obtained through the Drexel University Health Sciences Library. Literary data included qualitative and quantitative research studies, case histories, and book chapters identified through electronic data base searches.

Case histories referred to narrative descriptions of therapeutic interactions authored by creative arts therapists, or researchers in other topical areas of data collection, published between 1980 and 2009. Exceptions in publication dates were made for formative sources in the disciplines of psychotherapy, art psychotherapy, and pain/chronic pain. Research studies referred to studies published in research journals between 1990 and 2009. Exceptions to the date range were made for formative sources in the pain psychology literature. Book chapters referred to texts authored by researchers including text books published between 1980 and 2009.

Data were collected in five topical areas:

- **Pain/Chronic Pain.** Subtopics of this matrix included definitions and models of pain

- **Pediatric chronic pain**
• **Acceptance.** The term acceptance and its use in the treatment of chronic pain.

Subtopics included Acceptance and Commitment Therapy (ACT) and acceptance within mindfulness meditation

• **Interventions for pediatric chronic pain.** The primary areas focusing on the thesis objective were:

  1) Medical Treatments- pharmacological treatments and physical therapy
  2) Complementary and Alternative medicine (CAM) treatments
  3) Acceptance and commitment therapy (ACT) for pediatric chronic pain
  4) Mindfulness for pediatric chronic pain
  5) Creative Arts Therapies

• **Art Therapy.** Data collection was organized into four subtopics labeled as:

  1) Theories and practice of art therapy, 2) art therapy with children, 3) medical art therapy, and 4) medical art therapy for children with chronic pain

*Data Analysis*

Analysis of the data was guided by the three main steps of grounded theory analysis developed by Strauss & Corbin (1998): open coding, axial coding and selective coding.

The five topical areas of data collection provided the initial pre-determined codes for open coding. Open coding is the first step of data analysis and involves breaking the data into parts so that parts can be compared (Strauss & Corbin). Open coding resulted in identification of predominant concepts within each topical area of data collection. As stipulated by the method of grounded theory, identifying predominant concepts is a way to organize the data and explore themes in the data (Strauss & Corbin). Predominant
concepts emerged through comparing the abstracted results of literature collected in the review matrices. In discussing participant-based interview data Strauss and Corbin used the term *phenomena* to refer to concepts or abstractions from the data. In this literature-based study, the source of phenomena was abstracted results from studies contained in the results column of the review matrices. Similar concepts in results were grouped under the same open code. For example in Table 1, similar phenomena in the Pain/Chronic Pain matrix were grouped to result in an open code identified as: *lack of correspondence between experience of pain and tissue damage.*

As outlined by the grounded theory method, axial codes were derived from open coding by considering the conditions that gave rise to the open codes. Strauss & Corbin (1998) state that the aim of deriving axial codes is to develop a picture of the conditions that give rise to the phenomena that is being studied. The grounded theory method (Strauss & Corbin, 1998) states that during the axial coding process one considers the conditions connected to the phenomena that the data represents, such as causal, contextual, consequential, intervening and strategic conditions (Creswell, 2007; Mertens, 2005).

The descriptive categories were identified from groups of axial codes that represented the above relationships to the phenomena of the study. The larger goal of axial coding is to develop the categories that have been identified through coding, and to consider connections between categories and subcategories (Strauss & Corbin, 1998).

Axial codes were identified within each review matrix, and then similar axial codes, across all topic areas, were grouped, resulting in five descriptive categories. Specifically, axial codes within each area of literature review—pain/chronic pain,
pediatric chronic pain, acceptance, interventions for pediatric chronic pain, and art therapy—were compared and grouped. The largest groups became the descriptive categories. Axial codes that did not fit into one of the emergent five descriptive categories were not included. The identification of axial codes led to a reorganization of the data into five descriptive categories with subcategories. The five descriptive categories became the five components of the approach to art therapy incorporating acceptance. Variation within each descriptive category led to the identification of the subcategories.

In the final step of data analysis a core category is identified. Strauss and Corbin (1998) state that the core category should be a central idea that unites the main themes and that can be identified in all areas of data collection. The main themes in this literature-based study were the descriptive categories. The core category was developed by considering a common theme that was present in each of the main descriptive categories and that helped focus the developing approach to art therapy. The core category was also evaluated according to other criteria outlined by Strauss and Corbin (1998). Strauss and Corbin state that the core category should be abstract enough to explain variations and to emphasize main themes, and should be a concept that has the potential to be developed further (Strauss and Corbin, 1998).

Operational Definitions

**Case histories or case vignettes:** narrative descriptions of therapeutic interactions authored by creative arts therapists

**Pediatric chronic pain:** defined as pain in children that includes persistent or ongoing, and recurrent or episodic pain (American Pain Society, 2008) and as: “pain that persists
or recurs for 3 months or longer in people of 21 years or under” (Eccleston et al. (2002) p.158). Research on children who experience acute or short-term pain will not be included. The topical area of pediatric chronic pain will be delimited to headache pain, abdominal pain, musculoskeletal pain, and neuropathic pain. This delimitation includes the most frequently reported chronic pain conditions: lower limb, headache, and abdominal pain problems (Huguet & Miro, 2008; Perquin, 2000; Roth-Isigkeit et al., 2005). Cancer pain will not be included because it involves pain that is usually secondary to treatment (IASP, 2009, Cancer pain in children) rather than ongoing, and may change more dramatically over the course of illness than chronic pain.

**Medical treatments:** the use of pharmacological substances or physical therapy provided for relief of pain or as part of a treatment intervention program (where discussion of pharmacologic treatments is restricted to headache, neuropathic, abdominal and musculoskeletal pain only.)

**Complementary and alternative medicine (CAM) treatments:** therapies included in the field of complementary and alternative medicine (CAM) as delineated by the National Center for Complementary and Alternative Medicine (NCCAM) are: 1) alternative medical systems, 2) mind-body interventions, 3) biologically-based therapies, 4) manipulative methods, and 5) energy therapies- (Lin, Lee, Kemper & Berde, 2005). Only those in the category of 2) mind-body interventions, were included in this study. Mind-body interventions, as defined by NCCAM, include: cognitive behavioral therapy, biofeedback, relaxation therapy, guided imagery, meditation, and art, music, and dance/movement therapy.
Art therapy: a discipline that involves art and therapy with the goal of the art activity being principally therapeutic (Rubin, 2005).

Medical Art Therapy: refers to “…the specific use of art therapy with individuals who are physically ill, experiencing trauma to the body, or undergoing aggressive medical treatment such as surgery or chemotherapy” (Malchiodi, 1999).

Acceptance: a state of mind that observes thoughts and feelings without trying to change them and that supports decreased avoidance of valued activities despite the presence of chronic pain (Dahl & Lundgren, 2006; Hayes, 2004). Acceptance is also a component of a therapeutic approach for adults with chronic pain (Kabat-Zinn, 1990). Within Kabat-Zinn’s approach, acceptance is one of the seven essential attitudes that guide the practice of mindfulness meditation (Kabat-Zinn, 1990). Kabat-Zinn states: “Acceptance means seeing things as they actually are in the present” and “Acceptance…means that you have come around to a willingness to see things as they are” (Kabat-Zinn, 1990, p.38-39).

Mindfulness: “An operational working definition of mindfulness is: the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p.145).
CHAPTER 4: RESULTS

Major Findings

The research question addressed in this study was: what are the components of an approach to art therapy, incorporating acceptance, which may be used as a complementary treatment for children, ages 7-12, living with chronic pain? The components were identified through a grounded theory analysis of the literature resulting in the creation of a theory based upon five emergent components. The five components of the approach are: 1) Multiple factors in pediatric chronic pain, 2) Therapeutic relationship, 3) Developing capabilities, 4) Imagination and 5) Attention. As required by grounded theory method, a core category that represents a common theme present in the five components of the approach was also identified. The core category is called Discovering possibilities through acceptance. The result of the identification of the five components and their interactive roles, as a treatment for pediatric chronic pain, is the formulation of a theoretical model called the Art Therapy Acceptance Approach, referred to as ATAA.

Organization of Results

This chapter begins with a summary of the Art Therapy Acceptance Approach (ATAA) including a description of each of the components and the core category. A summary of the data analysis process is presented next including operational definitions of terms related to the grounded theory process of data analysis. The remainder of the results is described in the section called “Presentation of Results.” The results are presented in four sections in table form and narrative form. In the first section of the
results, the operational definition of the components and the role that each plays in the ATAA is presented. The components are presented in numerical order beginning with Component 1 and ending with Component 5. In the second section of the results, the five main components are presented in table form and narrative form in the section titled Amplification of the Five Components. The narrative is an amplification of the five main components and their subcategories in which each component is described with reference to the literature/data sources that substantiated it. In the third section of the results the core category is described. The fourth section of the results describes the roles that the components and subcategories play in the ATAA. The focus of the fourth section is how the components interact to form an approach to art therapy.

Following the narrative results are figures that describe the interactions between components. The interaction between all five components in the ATAA is shown in Figure 1. Figures 2, 3, 4, 5, and 6 present each component separately and describe each one’s contribution to the ATAA.

Summary of Art Therapy Approach

The Core Category

The Art Therapy Acceptance Approach (ATAA) is a theoretical approach incorporating acceptance. The core category, Discovering possibilities through acceptance, suggests how acceptance may function in the approach. Acceptance is identified as part of a process of finding options within the context of each of the components of the ATAA. For example, acceptance of a biopsychosocial approach to chronic pain is theorized to be associated with discovering greater options for treatment of pediatric chronic pain. The identification of the core category in Component 3 suggests
how acceptance of limitations in verbal capacity or physical movement may be associated
with finding options for communication and expression in the creative arts therapies.

The Five Components

Components 1 through 4 are described as different conditions or requirements for
the application of the ATAA.

Component 1. Component 1, Multiple factors in pediatric chronic pain, is a
contextual condition, or contextual component that represents factors which may
contribute to a child’s experience of chronic pain. Please refer to Table 1 for a list of
sources that substantiated each component. Factors identified in the present study are
necessarily limited by the methodology of data collection including the limited areas of
data collection, and therefore may not represent all of the relevant factors in a child’s
experience of chronic pain. Multiple factors provides an open framework in which an art
therapy approach incorporating acceptance would take place. In practice the role of
Component 1 is to allow for the incorporation of new factors as they emerge in the
literature or through the therapist’s experience. This component describes the range of
factors that may be involved in chronic pain, from emotions such as anxiety to the
behaviors of parents and family.

Component 2. Component 2, Therapeutic relationship, is an essential condition
within the approach and one that is needed in order for a patient to make use of the other
components of ATAA. For example, it provides the structure, and necessary conditions,
for exploring the impact of Psychological factors and Parent and family factors,
subcategories of Component 1. Ideally, Component 2 is intended to provide a an
emotionally responsive environment in which children may be able to use potential
capabilities represented by Components 3 and 4 (Developing capabilities and Imagination).

Component 3. Component 3, Developing capabilities, is a strategic condition, as it represents efforts or strategies that children reportedly used to communicate emotional information or contribute to managing their experience of pain. The role of Component 3, Developing capabilities is to encourage the therapist to recognize a patient’s developmentally related capabilities and interests. Developmentally related capabilities and interests are those that are associated with school-aged children such as self-initiation and stronger interest in experiential rather than abstract learning. The Developmental factors subcategory of Component 3 strengthens the contribution of Component 4, Imagination, by describing cognitive developmental abilities of school-aged children that are consistent with an ability to use metaphor. Metaphor involves creative, or imaginative, thinking (Gorelick, 1989). The subcategory of Component 3, Non-verbal communication, also strengthens the potential role of metaphor and symbolic language in the ATAA by describing children’s abilities to use non-verbal symbolic communication in the other creative arts modalities, music therapy (MT) and dance/movement therapy (DMT). The subcategory, Self-regulation describes developmental interests of school-aged children identified mainly in CAM interventions.

Component 4. Component 4, Imagination, is an intervening condition in the ATAA. It is considered intervening because it represents a capability that may become active within the therapeutic relationship and throughout the process of exploring chronic pain and acceptance. Component 4 represents a valued capacity that provides a potential means for exploring emotions, experience, and acceptance.
Component 5. Component 5, Attention, represents an awareness that shares some qualities of mindfulness, as mindfulness is defined in the present study, and that may be experienced in the art therapy process. Component 5 represents an aspect of experience that may share qualities of mindfulness, and that may contribute to developing a greater awareness of what may be accepted. Qualities of mindfulness that may be present in art therapy are paying attention in the present moment, and paying attention without judgment. Theoretically both qualities support the development of a greater awareness of what may be accepted which is a first step towards finding acceptance.

Summary of Data Analysis

The five components of the ATAA were identified from five descriptive categories of data that resulted from the grounded theory method of data analysis. The grounded theory method of analysis involved a data coding process, using literary data, in which open codes, axial codes, and, through selective coding, a core category, were identified.

Process of Data Analysis

In open coding, similar concepts within each data collection matrix were grouped leading to a set of open codes for each matrix. Axial codes were derived from open codes by considering the conditions that gave rise to each open code. Axial codes were generated within each matrix, or topical area of data collection. Axial codes from across all matrices were subsequently grouped based on common meaning, and each group of axial codes was given a name that reflected a common concept represented by the axial codes. The larger goal of axial coding is to develop the categories that have been
identified through coding, and to consider connections between categories and subcategories (Strauss & Corbin, 1998).

In the present literature-based study, categories were developed by identifying the topical areas of data collection that informed them and referring to literature that described the concepts within each category. The categories, which are now referred to as components are: *Multiple factors in pediatric chronic pain*, *Therapeutic relationship*, *Developing capabilities*, *Imagination* and *Attention*. Components and subcategories are shown in Table 1.

In grounded theory the results are presented in a form that reflects relationships between main categories and between subcategories. Subcategories in each group of axial codes were identified as means of describing properties or dimensions of the main category. The outcome of axial coding was a reorganization of the data which resulted in five main conceptual categories that became the central components of the Art Therapy Acceptance Approach.

The last step of the grounded theory method, selective coding, involves the identification of a core category (Strauss & Corbin, 1998). The core category emerged from the data by considering how the five main categories worked together, and how to define the function of acceptance in the approach.

*Operational Definitions Related to Data Analysis*

In order to make reference to the terms being used in the Results chapter that refer to stages of data analysis, operational definitions of the terms are provided below. Please refer to the Methods chapter for a complete description of the grounded theory data analysis process.
**Category**: A category represents a group of axial codes which were derived from open codes across topical areas and then grouped based on similarity in meaning.

**Subcategory**: Subcategories were identified within each category as a means of describing properties or dimensions of the main concept represented by the category.

**Core category**: The core category is an abstraction that is central to the phenomena being studied and is found to be present in the main concepts of the categories.

**Component**: Component is the term used to explain the role of each conceptual category in the approach to art therapy. The 5 main categories are referred to as components in the remaining sections of the Results.

**Presentation of Results**

Results are presented in table form and in narrative description. Results of the open coding process are presented in Appendix A, which contains one table of open codes for each area of data.

In the first section of the narrative results, the operational definition of the components and the role that each plays in the ATAA is presented. This provides an initial orientation to the results.

In the second section, called *Amplification of the Five Components*, the five main components are presented in table form and narrative form. The narrative in this section describes the five main components and their subcategories based on their initial identification as categories within the data. Each component is described with reference to the literature/data sources that substantiated it. The grounded theory method involves a constant comparison process in which themes or categories of data that emerge through coding are checked against samples of data (Strauss & Corbin, 1998). Brief examples
from the data are provided to strengthen the meaning of the components and how they are related to the collected data. The descriptions below of the five main components and their subcategories illustrate how they are grounded in the data and therefore how the ATAA is also.

In the third section of the narrative results, called Core Category, Discovering possibilities through acceptance, the core category is described. The core category is a concept or theme that contributes to understanding how the categories of data, or components of the approach, relate to each other (Strauss & Corbin, 1998).

The fourth section of the narrative results, called The Roles of the Components in the ATAA, describes the roles that the components and subcategories play in the model. The focus of this section is on how the components interact to form an approach to art therapy.

The narrative results are followed by six figures. The first figure shows how all five components interact within the ATAA (Figure 1). Figures 2 through 6 emphasize the role of each component separately within the overall approach (Figures 2, 3, 4, 5, and 6). The arrows used in the figures represent interaction. A unidirectional arrow from one component to another represents the influence of one component on another. The influence of one component on another is explained in narrative form in the section called The Roles of the Components in the ATAA. A bidirectional arrow suggests that two components interact in a more cyclical way. For example, the bidirectional arrow between Component 3 and Component 2 in Figure 1 suggests that the therapist will assess the child’s level of cognitive and emotional development including capabilities and limitations pertinent to art therapy, and will then incorporate this information into the
art therapy process. The child’s developmental capabilities contribute to how the therapeutic relationship develops (represented by an arrow pointing from Component 3 to Component 2) and the therapist integrates this information in order to provide developmentally appropriate interventions.

Operational Definitions of Components

In this first section of the narrative results, brief operational definitions of the components which are based on the role that each plays in the ATAA, are provided. Following the definitions each component is described with reference to the literature/data sources that substantiated it. Please note that the name of each component and subcategory is a singular name described with corresponding verb forms. For example one states that *Multiple Factors in Pediatric Chronic Pain* is a contextual component rather than *Multiple Factors are* a contextual component.

Component 1

*Multiple factors in pediatric chronic pain* is a contextual component that represents factors which contribute to a child’s experience of chronic pain. *Multiple factors* provides an open framework in which the art therapy approach may take place. The open framework allows for the incorporation of new factors as they emerge in the literature or through the therapist’s experience.

Component 2

*Therapeutic relationship* is an essential condition within the approach. Establishing a therapeutic relationship is a condition needed in order for a patient to make use of the other components of the approach. Component 2 is intended to provide a safe
environment in which children may be able to use capabilities represented by Components 3 and 4 (Developing capabilities and Imagination).

**Component 3**

*Developing capabilities* is a strategic condition that represents efforts or strategies that children use to communicate or use towards managing aspects of chronic pain. The role of Component 3 is to encourage the therapist to recognize a patient’s developmentally related capabilities and interests which are described by the subcategories *Developmental factors, Non verbal communication, and Self-regulation*.

Component 3 strengthens the contributions of Components 4, *Imagination*, by identifying limited evidence of a cognitive developmentally based ability of school-aged children to use metaphor.

**Component 4**

*Imagination* is an intervening condition in that it represents a capability that may become active within the therapeutic relationship and throughout the process of exploring chronic pain and acceptance. Component 4 represents a valued capacity that provides a potential means for exploring emotions, experience, and acceptance.

**Component 5**

*Attention* represents an awareness that shares some qualities of mindfulness and that may be experienced in the art therapy process. It represents an aspect of experience in art therapy that may contribute to developing a greater awareness of what may be accepted.
The Five Components of the Art Therapy Acceptance Approach

In this second section of the results an amplification of the five central components and their subcategories is presented. The amplification follows Table 1 and Table 2 which are presented below. Table 1 is a chart of the components and subcategories. Table 2 lists the data sources that informed each component in order to demonstrate evidentiary support for the approach.

Table 1

<table>
<thead>
<tr>
<th>Categories and subcategories</th>
<th>Components and Subcategories</th>
</tr>
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<tbody>
<tr>
<td>Core category: Discovering possibilities through acceptance</td>
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<tr>
<td>Multiple factors in pediatric chronic pain</td>
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<tr>
<td>Psychological factors</td>
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<tr>
<td>Parent and family factors</td>
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<tr>
<td>Therapeutic relationship</td>
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<tr>
<td>Trust</td>
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<tr>
<td>Interactive process</td>
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<td>Developing capabilities</td>
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<td>Non-verbal communication</td>
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<td>Self-regulation</td>
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<td>Developmental factors</td>
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<td>Imagination</td>
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<tr>
<td>Expression of emotions</td>
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<tr>
<td>Introducing concepts</td>
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<td>Visualizing pain</td>
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<td>Attention</td>
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<td>Sensory experience</td>
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<td>Awareness in art therapy</td>
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Table 2
*Components of approach and sources*

<table>
<thead>
<tr>
<th>Component</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic relationship</td>
<td>Case &amp; Dalley, 2006; Tanaka, Kakuyama, &amp; Urhausen, 2003; Rubin, 2005; Wadeson, 2000; Landgarten, 1981; Prokoviev, 1998; Christie, Hood &amp; Griffin, 2006; Loewy et al., 1997; Mendelsohn, 1999; Muller, 1997; Ball, 2002; Wood, 1984; Gabel, 1984; Winnicott, 1971</td>
</tr>
<tr>
<td>Multiple Factors in Pediatric Chronic Pain</td>
<td>Clinch &amp; Eccleston, 2009; Kozlowska et al., 2008; McGrath &amp; Hillier, 2002; Zeltzer, Bush, Chen &amp; Riveral, 1997; Kashikar-Zuck et al., 2008; Kashikar-Zuck et al., 2001; McGrath &amp; Hillier, 2002; Anthony &amp; Schanberg, 2003; Varni et al., 1996; Christie, Hood &amp; Griffin, 2006; McGrath &amp; Hillier, 2002; Eccleston &amp; Eccleston, 2004; Klepper, 1998; Lee et al., 2002; Sherry, Wallace, Kelley, Kidder &amp; Sapp, 1999; Sallfors, Fasth &amp; Hallberg, 2002; Gold et al., 2009; Palermo &amp; Chambers, 2005; Councill, 2003; Guell, 2007; Masters, 2006; Barton, 1999; Ball et al., 2003; Duarte et al., 2006; Engel, 1992; Ott, 2002; Palmer &amp; Shepard, 2008; Bursch, Walco &amp; Zeltzer, 1998</td>
</tr>
<tr>
<td>Developing Capabilities</td>
<td>Fenton, 2000; Palmer &amp; Shepard, 2008; Russell, 1995; Savins, 2002; Vasarhelyi, 1990; Winnicott, 1971; Loewy, 1997; Muller, 1997; Mendelsohn, 1999; Wicksell, Melin, &amp; Olsson, 2007; Wicksell, Melin, Lekander &amp; Olsson, 2009; Wicksell &amp; Greco, 2008; Anbar, 2001; Ball, Shapiro, Monheim &amp; Weydert, 2003; Guell, 2007; Lee et al., 2002; Masters, 2006; Sherry et al., 1999; Gabriels, 2000; Engel, 1992; Kashikar-Zuck, et al., 2005; Walco &amp; Ilowite, 1992; Holden, Deichmann &amp; Levy, 1999; Bussone, Grazzi, D'Amico, Leone &amp; Andrasik, 1998; Culbert &amp; Banez, 2003; Grazzi et al., 1998 Duarte et al., 2006; Goodill, 2005; Newman &amp; Newman, 2006; Pulaski, 1980; Rosen, 1985; Bibace &amp; Walsh, 1979; Rosen, 1985</td>
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</table>
Table 2 (continued)

| Imagination | Henley, 2007; Russell, 1995; Sallfors, Fasth, & Hallberg, 2002; Sundaram, 1995; Council, 2003; Henley, 2007; Landgarten, 1981; Sundaram, 1995; Palmer & Shepard, 2008; Rubin, 2005; Wadeson, 1980; Vasarhelyi1, 1990; Henley, 2007; Lusebrink, 1990; Savins, 2002; Gabel, 1984; Wadeson, 2000; Winnicott, 1971; Mallay, 2002; Wicksell, & Greco, 2008; Wiksell, R.K., Melin, L., & Olsson, G.L., 2007; Thompson & Gauntlett-Gilbert, 2008; Semple et al., 2005; Gaffney & Dunne, 1986; Barton, 1999; Beales et al., 1983; Lusebrink, 1990; Clinch & Eccleston, 2009; Anbar, 2001; Ball, Shapiro, Monheim & Weydert, 2003; Duarte et al., 2006; Walco & Illowite, 1992 |

| Attention | Kabat-Zinn, 2003; Ott, 2002; Semple et al., 2005; Thompson & Gauntlett-Gilbert, 2008; Case & Dalley, 2006; Lusebrink, 1990; McNiff, 2001; Wadeson, 2000; Wood, 1984; Ott, 2002 |

Amplification of the Five Components

This section provides a narrative amplification of the five central components and their subcategories.

Component 1: Multiple Factors in Pediatric Chronic Pain

Multiple factors in pediatric chronic pain is a contextual component that represents factors which contribute to a child’s experience of chronic pain. It is referred to as Multiple factors. The Multiple factors component consists of aggregated research that describes the experience of chronic pain as involving multiple aspects. Concepts in this component are substantiated by research in the topical areas of pain/chronic pain, pediatric chronic pain, medical treatments, complementary and alternative (CAM) treatments, and art therapy. The largest numbers of sources cited are from the areas of
pediatric chronic pain and CAM treatments. Pediatric chronic pain data sources range in
type from critical reviews of the literature to experimental quantitative studies with
various limitations. For example, cross-sectional studies (Gold et al., 2009; Varni et al.,
1996) do not provide information about change over time. Other outcome studies
assessed improvements in symptoms, functioning measures, and specific measures of
disease status. A wider range of methods exist within CAM research ranging from
qualitative case studies to controlled experimental studies. Common limitations of
collected studies in CAM are a small number of participants (less than 35), the use of
non-standardized outcome measures and intervention protocols that included a number of
unclearly defined variables.

The predominant factors recognized in the data and that contribute to Component 1 are: emotional aspects of children’s chronic pain experience such as symptoms of
anxiety or depressive disorder (Clinch & Eccleston, 2009; Kashikar-Zuck et al., 2008;
Kozlowska et al., 2008; Sallsforth, Fasth & Hallberg, 2002); the impact of parents and
family on the experience of pain (Christie et al., 2006; Council, 2003; Guell, 2007;
Kozlowska et al., 2008; McGrath & Hillier, 2002; Sallfors, Fasth, & Hallberg, 2002;
Sartain, 2000); parents’ discomfort with approaching treatment of pain from a
biopsychosocial perspective (Christie et al., 2006; Clinch & Eccleston, 2009; Kozlowska
et al., 2008; Masters, 2006; McGrath & Hillier, 2002); and the view that adequate
treatment of chronic pain considers the influence of multiple factors (Kashikar-Zuck et
al., 2008; Kozlowska et al., 2008; McGrath & Hillier, 2002). Sub-categories of
Component 1 are: Psychological factors and Parent and family factors.
Subcategory #1 of Component 1: Psychological Factors

This subcategory represents distressing emotions and/or symptoms of anxiety or depressive disorder that are recognized in the data. The subcategory is substantiated by data describing emotional aspects of children’s chronic pain experience such as distressing emotions and/or symptoms of anxiety or depressive disorder (Clinch & Eccleston, 2009; Kashikar-Zuck et al., 2008; Kozlowska et al., 2008; Sallsforth, Fasth & Hallberg, 2002). Symptoms of anxiety and depression were often described as part of a functional disability that was associated with pediatric chronic pain conditions (Gold et al., 2009; Kashikar-Zuck, Vaught, Goldschneider, Graham & Miller, 2001; Sallsforth, Fasth & Hallberg, 2002). A significant positive correlation between depression and functional disability was reported (Kashikar-Zuck et al., 2001), as was an association between anxiety, depressive symptoms or sadness, and pain level (Sallsforth et al., 2002; Schanberg et al., 2003; Varni et al., 1996).

Subcategory #2 of Component 1: Parent and Family Factors

This subcategory represents a range of factors involving the impact of parents or caregivers on a child’s experience of chronic pain (Anthony & Schanberg, 2003; McGrath & Hillier, 2002; Palermo & Chambers, 2005; Sherry, 2001). Factors include: the impact of parents’ behavior on the child’s experience of pain (Christie et al., 2006; Councill, 2003; Guell, 2007; Kozlowska et al., 2008; McGrath & Hillier, 2002; Sallfors, Fasth, & Hallberg, 2002; Sartain, 2000); parents’ inclination to view chronic pain from a biomedical model rather than biopsychosocial model (Christie et al., 2006; Clinch & Eccleston, 2009; Kozlowska et al., 2008; Masters, 2006; McGrath & Hillier, 2002) and
parents’ inclusion in interventions for pediatric chronic pain (Ball et al., 2003; Barton, 1999; Duarte et al., 2006; Engel, 1992; Ott, 2002; Palmer & Shepard, 2008).

The subcategory of Parent and family factors represents parents’ influence on the child’s approach to pain such as parents’ identification of the wrong cause of pain leading to an increase in the child’s anxiety (McGrath & Hillier, 2002) or not recognizing that stress can play a large part in the experience of pain (McGrath & Hillier). Affects of parents’ behavior on children’s behavior includes parents’ reinforcement of disability by allowing children to stop activities (Bursch, Walco & Zeltzer, 1998; McGrath & Hillier, 2002) and reinforcing a child’s tendency to remain inactive even though movement is needed to maintain health status (Kozlowska et al. 2008). Concerns that contribute to a disability pattern are parents’ reported fear of causing a child pain by encouraging activity, and parents’ desire to avoid the emotional distress that can accompany rehabilitation (Bursch et al., 1998).

Another factor included in this subcategory is parents’ inclusion and participation with the child in intervention protocols (Ball et al., 2003; Barton, 1999; Duarte et al., 2006; Engel, 1992; Kashikar-Zuck, Swain, Jones & Graham, 2005; Ott, 2002; Palmer & Shepard, 2008; Wicksell et al., 2009). Guell (2007) and Masters (2006) describe parents’ involvement in the child’s treatment as influencing the child’s efforts to manage chronic pain. In a qualitative ethnographic study parents were discussed as partners in helping children to find adaptive strategies for remaining active (Guell). In several complementary and alternative medicine (CAM) interventions, parents reportedly attended pain-information giving sessions (Duarte et al., 2006) and training sessions (Engel, 1992; Ott, 2002) with the purpose of learning alongside of their child in order to
provide encouragement and prompting for practice at home (Engel, 1992; Ott, 2002). In contrast, parents were also described as misdirected in their efforts to help their child (Masters, 2006).

The impact of parents’ view of chronic pain from a biomedical or acute pain model is also part of this subcategory. Literature representing the subcategory Parent and family factors was identified in the topical areas of pediatric chronic pain and complementary treatments (Bursh et al., 1998; Christie et al., 2006; Clinch & Eccleston, 2009; Kozlowska et al., 2008; McGrath & Hillier, 2002). Clinch & Eccleston (2009) state that families often struggle with understanding how chronic pain is different from acute pain, including the idea that chronic pain may not signal damage or have a clear function. Christie et al. (2006) observed that parents and children often experience frustration when a child reports physical pain in her body but no medical diagnosis is made. The tendency to separate the physical from the psychological was also identified in parents’ resistance to allowing their child or themselves to complete a psychological assessment unless information about physical disease was provided first (Kozlowska et al., 2006). Some parents do not consider that anger with the medical system (Kozlowska et al.) or difficulties with intra-family relationships (Masters, 2006; Palermo & Chambers, 2005) may be related to their child’s experience of chronic pain. The family’s impact on the child’s experience of chronic pain involves overlapping areas of influence: behavior of parents; parent-child dyadic interactions; family functioning as a unit (Palermo & Chambers).

The subcategory Parent and family factors also includes the concept that providing adequate treatment for chronic pain is dependent on the understanding that
there are multiple factors influencing the experience (Kashikar-Zuck et al., 2005; Kozlowska et al., 2008; McGrath & Hillier, 2002). A number of sources reported that when multiple factors were considered in designing treatment, the patient and family discovered new ways of viewing the child’s pain (Anthony & Schanberg, 2003; Christie, Hood & Griffin, 2006; Kozlowska et al., 2008; Masters, 2006; McGrath & Hillier, 2002).

Component 2: Therapeutic Relationship

*Therapeutic relationship* is an essential condition in the ATAA, and one that is needed in order for a patient to make use of the other components. Data in this component describe important aspects of a therapeutic relationship for children in an art therapy context. The concepts that emerged from the coding process are substantiated by research in the topical areas of art therapy theory and practice, medical art therapy, music therapy (MT), dance movement therapy (DMT), and one study from the area of CAM. Sources in this component are equal in number from medical art therapy, art therapy theory and practice and the creative arts therapies of DMT and MT. Sources from the area of art therapy range in type from book chapters with authors’ descriptions of clinical experiences with patients and theoretical discussion, to qualitative case reports in DMT and MT. Clinical art therapy and DMT sources are particularly detailed in their description of patients and interventions. Subcategories of this component are: Trust and Interactive process.

*Subcategory #1 of Component 2: Trust*

This subcategory describes an element of the therapeutic relationship in the context of art therapy practice. A relationship that includes trust reportedly provides an emotionally responsive environment that supports self-expression and discovering
emotions (Case & Dalley, 2006; Rubin, 2005; Tanaka, Kakuyama, & Urhausen, 2003; Wadeson, 2000). Part of building trust in art therapy includes setting defined limits and providing structure through rules, routines and types of material. Trust between the therapist and the individual or group, and trust among group members is connected to establishing time and space limits, and ground rules for social interaction including respect for art work (Landgarten, 1981; Prokoviev, 1998; Rubin, 2005). Trust through providing structure is also established by providing an objective for an art therapy group but allowing and supporting each child in following his/her own process towards reaching the objective (Landgarten). In art therapy, the process of developing trust is reflected in a child’s visual productions— as trust grows a child becomes more expressive and better able to externalize his/her emotions in visual representations (Rubin, 2005; Tanaka, Kakuyama, & Urhausen, 2003; Wadeson, 2000).

The establishment of trust is also identified in the areas of music therapy (MT) and dance/movement therapy (DMT). The creative arts therapies of music therapy (MT) and dance/movement therapy (DMT) are professional fields of work that are related to art therapy (AT). The creative arts therapies use different modalities— art, music, or dance/movement, as the basis of therapeutic interventions. All three modalities facilitate integration of physical, emotional, cognitive, and social functioning (National Coalition of Creative Arts Therapies Associations, 2009). In DMT and MT different approaches for establishing trust are used, and dependent on the unique circumstances of the patient (Christie et al., 2006; Loewy et al, 1997; Mendelsohn, 1998; Muller, 1997). In DMT, part of establishing trust is identified as using play, physical contact or relaxation strategies at the start of therapeutic work (Mendelsohn, 1998). In MT, the establishment of trust
includes the process of reflecting the patient’s affective state through musical choices, and conveying to the patient that the therapist has confidence in his ability to participate (Loewy et al., 1997).

Subcategory #2 of Component 2: Interactive Process

The subcategory Interactive process represents collaborative work between therapist and patient in the art therapy process (Ball, 2002; Gabel, 1984; Tanaka, Kakuyama, & Urhausen, 2003; Winnicott, 1971). An example of collaborative work is building a single image through sequential contribution by therapist and child. A therapeutic dialogue between art therapist and child is reportedly successful when both parties are engaged and responsive to each other’s emotional communication (Ball, 2002; Wood, 1984). Creating images with a patient is identified as a way of validating the child’s metaphors and allowing the child to be the director of his own story (Ball; Gabel; Winnicott). Collaborative stories are identified as one way in which a patient experiences acceptance of emotions connected to illness or emotional trauma (Ball; Tanaka et al.; Winnicott). Joint drawings are described as useful for children who were not willing or able to engage verbally (Gabel) or who showed decreased attention span (Wadeson, 2000). For children recovering from a traumatic accident, telling a story in response to verbal prompts is identified as another example of therapeutic exchange (Chapman, 2001).

Component 3: Developing Capabilities

Component 3 describes capabilities and interests that are associated with school-aged children, also described as children in the concrete operational stage of cognitive development. This component represents reported capabilities of participants used in
treatment interventions in the areas of complementary and alternative medicine (CAM) and creative arts therapies. It is a strategic condition that represents efforts that children use to communicate or towards managing aspects of chronic pain. The concepts that emerged from the coding process are substantiated by research in the topical areas of creative arts therapies (CAT’s), Acceptance and Commitment therapy (ACT) for pediatric chronic pain, physical therapy (PT), and CAM treatments. The largest numbers of sources substantiating this component are from the topical area of CAM treatments in both mind-body interventions and creative arts therapies (CAT’s). A smaller number of sources are from the topical areas of pediatric chronic pain and ACT. Common limitations of studies evaluating mind-body treatments such as cognitive behavioral therapy (CBT), or relaxation combined with biofeedback, are a small number of participants (less than 35), the use of non-standardized outcome measures, and intervention protocols that included a number of different interactive variables that were combined to form unique interventions for each participant. The use of multiple variables per intervention presents the problem of determining which variables contributed to a study’s results. The lack of standardized interventions contributed to problems with validity and reliability of the results. Several types of studies are represented among the data in this component: case studies, pilot studies with and without control groups, and prospective studies. Sources represented in the creative arts therapies (CAT’s) are: book chapters, case reports and one quantitative study in a medical journal. The subcategories of Component 3 are: *Non-verbal communication, Self-regulation, and Developmental factors.*
Subcategory #1 of Component 3: Non-verbal Communication

The subcategory *Non-verbal communication* represents children’s use of metaphor and symbolic non-verbal communication to describe illness. This subcategory is supported by literature in the creative arts therapies, in which children communicate and interact with adults and therapists through non-verbal modalities. As stated earlier, the creative arts therapies of music therapy (MT) and dance/movement therapy (DMT) are professional fields of work that are related to art therapy (AT). In art therapy (Fenton, 2000; Palmer & Shepard, 2008; Russell, 1995; Savins, 2002; Vasarhelyi, 1990), psychotherapy (Winnicott, 1971), music therapy (Loewy et al., 1997; Muller, 1997) and dance therapy (Mendelsohn, 1998) children are reportedly able to convey thoughts and emotions non-verbally. There are some examples in the literature of children who are reported to have greater ability to describe emotions related to their illness in drawing form, than through verbal communication (Fenton, 2000; Gabriels, 2000; Russell, 1995). It is noted that children of school age have less flexibility than adults in choosing how to communicate. Children’s mental activities are still based on aspects of their physical environment and their verbal ability reflects these cognitive limitations.

In music therapy (MT) children are reportedly able to create stories to reflect on their experience of pain (Loewy et al., 1997; Muller, 1997) or in DMT, to use symbolic movement to communicate distressing emotions about their illness (Mendelsohn, 1998). In music therapy (MT) children used instrumental improvisation and metaphor to describe pain (Loewy et al.). Engagement in MT reportedly helped reduce fear and provided an alternate focus from pain (Muller). An 8 year-old patient who was not able to use more physically demanding body movement in DMT, was reportedly able to
communicate symbolically through use of props and stationary positioning of his body (Mendelsohn, 1998).

**Subcategory #2 of Component 3: Self-regulation**

The subcategory *Self-regulation* refers to the capabilities of pediatric patients as described in interventions including the areas of CAM and PT. *Self-regulation* is defined from research studies in the areas of physical therapy (PT), cognitive behavioral therapy (CBT), and biofeedback, in which children participated in managing aspects of their illness (Anbar, 2001; Ball, Shapiro, Monheim & Weydert, 2003; Guell, 2007; Lee et al., 2002; Masters, 2006; Sherry, Wallace, Kelley, Kidder & Sapp, 1999).

Children contributed to managing symptoms of their pain by learning techniques such as progressive muscle relaxation (PMR) or relaxation (Engel, 1992; Kashikar-Zuck, et al., 2005; Walco & Ilowite, 1992), self-hypnosis (Anbar, 2001), relaxation combined with guided imagery/self-hypnosis (Ball et al., 2003; Holden, Deichmann & Levy, 1999), biofeedback, biofeedback assisted relaxation (Bussone, Grazzi, D'Amico, Leone & Andrasik, 1998; Culbert & Banez, 2003; Grazzi et al., 1998), and paced breathing (Duarte et al., 2006; Masters, 2006). The above interventions involved developing self control of physiological processes that led to improvement in children’s pain condition. In PT interventions (Klepper, 1998; Lee et al., 2002; Sherry et al., 1999) children participated in managing their chronic pain by learning and practicing independent exercises between sessions.

Several experimental studies in the subcategory *Self-regulation* reported a significant difference in at least one pain or functioning related outcome measure. Interventions that produced significant results are: Coping Skills Training (CST)
(Kashikar-Zuck et al., 2005), biofeedback assisted relaxation (Bussone et al., 1998), relaxation and guided imagery (Ball et al., 2003), and cognitive-behavioral therapy including relaxation and distraction (Duarte et al., 2006). Coping Skills Training (CST) is a cognitive-behavioral intervention that emphasizes an active role in pain management, including techniques such as activity pacing, progressive muscle relaxation and problem-solving (Kashikar-Zuck et al., 2005).

Of the CAM studies that reported significant results, two studies (Ball et al., 2003; Duarte et al., 2006) included participants between ages 7 and 12 years. A third study (Bussone et al., 1998) enrolled participants between ages 11 and 15, and a fourth (Kashikar-Zuck et al., 2005) enrolled older participants, ages 13 to 17. Studies by Ball et al., Duarte et al., and Bussone et al. included some or part of the present study’s targeted age range (Ball et al., 2003; Bussone et al., 1998; Duarte et al., 2006) and reported significant improvement in outcome measures. Outcome measures with corresponding interventions are: 1) number of headaches improved by biofeedback assisted relaxation intervention (Bussone et al., 1998); 2) percentage decrease in pain improved by a combination of deep abdominal breathing, sequential muscle group relaxation and visualization (Ball et al., 2003); and 3) frequency of pain, improved by a CBT protocol that included physical exercise to promote relaxation, and cognitive procedures such as redirection of attention (Duarte et al., 2006). The techniques taught to participants in the above three interventions seem to involve the cultivation of physical interventions to foster psychological or cognitive schema.

In the area of medical interventions, children participated in physical therapy (PT) interventions that included self-monitoring of physiological measures or learning exercise
Regimens or techniques that were practiced independently. In programs of exercise therapy (Lee et al., 2002; Sherry et al., 1999) including a combination of PT with CBT (Lee et al.) participants are identified as contributing to management of their own pain (Klepper, 1998; Lee et al.; Sherry et al.). In a physical conditioning program for children ages 8 to 17 with chronic arthritis, participants were asked to exercise at home between therapy sessions, and to wear a monitor during home exercise sessions to record their heart rate during peak aerobic periods (Klepper, 1998). In another example, participants enrolled in individualized PT programs were taught self-regulatory treatments such as relaxation training, in combination with CBT strategies that emphasized problem solving (Lee et al.). In an intervention for patients with chronic regional pain syndrome (CRPS) exercise therapy was combined with a home exercise program and a cognitive component that emphasized patient functioning and (CRPS) (Sherry et al., 1999).

Subcategory #3 of Component 3: Developmental Factors

The subcategory, Developmental factors, identifies cognitive characteristics and developmental interests of children in the concrete stage of cognitive development that are related to the other subcategories of Component 3, Non-verbal communication and Self-regulation. The use of metaphors to describe pain and illness were related to children’s level of cognitive development in studies by Gaffney and Dunne (1986) and Beales, Lennox-Holt, Keen & Mellor, et al. (1983). Using questionnaires, Gaffney and Dunne asked 680 children between ages 5 and 14 to define pain. Findings of the study included that children in an age group between 8 and 10 years, began to use synonyms to describe pain. Gaffney and Dunne (1986) reported significant differences between three age groups (5 to 7 years; 8 to 10 years; 11 to 13 years) in the type of definitions used to
describe pain. Types of definitions were categorized as concrete, semi-abstract, or abstract. Children in the concrete stage of cognitive development between approximately 8 and 11 years used semi-abstract definitions that were described as analogies (Gaffney & Dunne, 1986). Pain was: “…a feeling like knives and forks stabbing into you…” or “…a dagger going through…” (Gaffney & Dunne, 1986, p.111). In response to questions, children in the early formal operations stage of cognitive development (ages 11 to 12) included references to physical and psychological aspects of pain such as “suffering,” “mental pain,” and “a feeling that makes you angry and spiteful” (Gaffney & Dunne, 1986, p.112). Gaffney and Dunne stated that reaching the stage of concrete operations allowed children to make analogies to pain. Children were able to combine their ability to reason and make comparisons with their knowledge of the environment to describe pain.

Beales et al. (1983) reported results of a study concerning beliefs about illness in children with chronic pain. Beliefs of children between ages 7 and 11 were distinguished from those of children ages 12 to 17, by use of descriptions that relied on analogies. Beales et al. reported that children between 7 and 11 years seemed to need to connect descriptions of illness with features of their immediate experience. For example, blood vessels were compared to pipelines, and nerves to electrical wiring (Beales et al.)

The subcategory Developmental factors and the concrete stage of cognitive development inform the subcategories of Non-verbal communication and Self-regulation. Links are identified between self-regulatory techniques as described in CAM interventions, and school-aged children’s stage of cognitive development and developmental interests (Goodill, 2005; Newman & Newman, 2006; Pulaski, 1980;
Rosen, 1985). The suitability of complementary treatments involving self-initiation or learning, for school-aged children is emphasized in a description of biofeedback for pediatric patients (Culbert & Banez, 2003). Biofeedback is stated to provide a way for children to experience how thinking can alter physiological processes by watching visual changes on a display screen (Culbert & Banez).

In the age range of 7 to 12, children are described as capable of using cause and effect reasoning to think about illness (Goodill, 2005). Biofeedback involves making a connection between a cause and effect through observation of visible information, a process that is theoretically consistent with children’s greater interest in experiential than abstract learning (Newman & Newman, 2006). Data suggest that self-regulatory techniques often involve practice and becoming better at helping oneself to manage chronic pain (Anbar, 2001; Ball et al., 2003; Bussone et al., 1998; Engel, 1992; Masters, 2006; Walco & Ilowite, 1992). Practice and improvement are linked to the interests of school-aged children such as observing logical connections in their environment and improving performance (Newman & Newman, 2006).

Component 4: Imagination

*Imagination* is an intervening condition in the ATAA. It is considered intervening because it represents a capability of patients that may become active within the therapeutic relationship and remain active throughout the process of exploring chronic pain and acceptance. Component 4 is supported by literature describing children’s reported use of metaphor to express emotions, treatment interventions using metaphor to explain concepts to children, and children’s participation in interventions that included imaginative visualization. Literature from the topical areas of medical art therapy, CAM
treatments, and ACT for pediatric chronic pain informed this component. A number of medical art therapy sources are detailed case studies of one or a few patients with chronic pain or another illness. Other medical art therapy sources are descriptions of clinical examples in book chapters. ACT-related sources include narrative descriptions of interventions in book chapters, and quantitative studies. The applicability of quantitative ACT-based research is limited by the older age of participants and lack of standardized protocols. Limitations of interventions in the area of CAM include lack of standardized measures to assess outcome, lack of control groups, and small numbers of participants.

The subcategories of Component 4 are *Expression of emotion*, *Introducing concepts* and *Visualizing pain*.

**Subcategory #1 of Component 4: Expression of Emotion**

This subcategory represents children’s use of metaphor to express emotions. It is supported by sources that describe children’s reported ability to create their own metaphors and to use them for self-expression. Examples of how and why children may use metaphors for self-expression are also identified. Pediatric patients are described as more easily able to express emotions through the structure of metaphor than through direct responses to questions (Henley, 2007; Russell, 1995; Sallfors, Fasth, & Hallberg, 2002; Sundaram, 1995). Metaphors are described as an important part of art therapy with children because they provided a safe distance between self and emotions (Councill, 2003; Henley, 2007; Landgarten, 1981; Russell; Sundaram). Metaphors reportedly also serve as an effective means of communication with adults (Palmer & Shepard, 2008; Rubin, 2005; Wadeson, 1980). Children who could not verbalize on an adult level use metaphor to convey important thoughts and feelings (Palmer & Shepard, 2008;
Metaphors are also used to describe the discomfort level of chronic pain (Sallfors et al., 2002; Savins, 2002).

The use of metaphors is described as an emotionally less threatening mode of expression than literal expression. Metaphors reportedly allow children to externalize emotions that are less conscious (Rubin, 2005) often through spontaneous storytelling (Councill, 2003; Gabel, 1984; Wadeson, 2000; Winnicott, 1971). Creating a metaphoric story of self is reported to help children contain emotions in a form that made sense to them (Gabel, 1984; Landgarten, 1981; Mallay, 2002; Russell, 1995). Metaphor is also described as a structure with which children worked through uncertainty about acceptance of an injury (Russell, 1995), or the course of illness (Henley, 2007; Mallay, 2002; Wadeson, 2000). Metaphors reportedly help children to express complex ideas and emotions through their ability to represent several perspectives in one image (Henley; Lusebrink, 1990; Rubin, 2005; Wadeson, 1987).

Subcategory #2 of Component 4: Introducing Concepts

This subcategory represents the use of metaphors by investigators as a method of introducing the concepts of mindfulness or acceptance to children. The use of metaphor for this purpose is identified in the topical areas of Interventions for pediatric chronic pain incorporating ACT or mindfulness (Semple et al., 2005; Thompson & Gauntlett-Gilbert, 2008; Wicksell & Greco 2008; Wicksell, R.K., Melin, L., & Olsson, G.L., 2007; Wicksell, Melin, Lekander & Olsson, 2009) and Pediatric chronic pain (Clinch & Eccleston, 2009).

The use of metaphors to introduce mindfulness is addressed in a review of research about mindfulness and children (Thompson & Gauntlett-Gilbert, 2008) and is
examined in a pilot study assessing the impact of mindfulness training on symptoms of anxiety in children (Semple et al., 2005). Thompson & Gauntlett-Gilbert stated that the use of metaphors as a method of explanation conveyed a connection between the practice of mindfulness meditation and aspects of daily life (Thompson & Gauntlett-Gilbert). Thompson & Gauntlett-Gilbert reported that metaphors have been used to explain the concept of an observer perspective in meditation — the participant is the viewer of thoughts which are visualized as bubbles floating away (Thompson & Gauntlett-Gilbert).

The use of metaphor to introduce an abstract concept was part of a pilot study (N=5) investigating the use of mindfulness training for reducing anxiety in children, aged 7 to 8 (Semple et al., 2005). Part of this intervention included introducing children to the concept and practice of mindfulness by using a metaphor for the concept of letting go of worries. Letting go of worries or allowing worries to arise without reacting in a habitual way, was considered an important aspect of mindfulness for children to understand (Semple et al., 2005). There are limitations of this study’s methodology and in applicability to the concerns of the present study. Self-report measures for anxiety were part of the original study design but were not included in the results because participants reported experiencing little anxiety. Scores from a standardized report form, the Child Behavior Checklist-Teacher Report Form (CBCL Teacher Report Form), indicated a trend towards fewer problem behaviors and improvements in other areas, but it is unclear how much the concept of mindfulness or mindfulness practice contributed to the results. Another methodological problem is that third party outcome data (CBCL Teacher Report Form) was not blinded, so that teachers’ expectations of the effects of mindfulness training may have influenced their ratings. Regarding applicability to the present study, it
is noted that because Semple et al. (2005) focused on assessing improvements in anxiety, results did not indicate whether children understood the concept of mindfulness. Semple et al. (2005) informally observed the participants as interested in mindfulness, easily able to think of applications for daily life, and enthusiastic about the use of a wastebasket metaphor for throwing away worries (Semple et al.).

The use of metaphor to introduce acceptance was identified in two quantitative studies and a narrative description (Wicksell et al., 2009; Wicksell et al, 2007; Wicksell & Greco, 2008). For example, Wicksell et al. (2007) incorporated metaphor to introduce acceptance and the benefits of participating in an ACT based intervention in a pilot study for adolescents with chronic pain. The focus of the intervention was to challenge participants to participate in meaningful activities despite pain (Wicksell et al., 2007). Reported results of the study included a 63% improvement in functional disability, as measured by the functional disability inventory-child form (FDI) (Walker & Greene, 1991). Because there were multiple components of the intervention, and the use of metaphor to explain acceptance was only a small part of the protocol, it is unclear whether using metaphor to introduce acceptance, contributed to the results. Wicksell et al. (2007)’s study also enrolled older participants (ages 13 to 20) than the age range targeted for the present study (7 to 12), which limits its applicability for the present study. Other limitations of results of Wicksell et al. (2007)’s study are the size (N=14), lack of a control group and lack of a standardized treatment protocol.

Wicksell and Greco (2008) describe in narrative terms how metaphor may be used to explain the concept of acceptance to children. The metaphor of a pain monster represents the struggle to control pain. Wicksell and Greco’s discussion did not provide
any research data to support the idea that children may understand abstract concepts if they are introduced through metaphor.

The use of metaphor to explain a concept other than mindfulness or acceptance is mentioned in the context of helping families to understand a biopsychosocial view of pain (Clinch & Eccleston, 2009). Clinch and Eccleston did not report on research using metaphor, but mentioned it as a tactic that was used in communicating with families in a clinical setting.

*Subcategory #3 of Component 4: Visualizing Pain*

This subcategory represents the inclusion of visualization for the purpose of pain reduction in CAM interventions. In a number of CAM studies participants were asked to use imagination in visualization exercises for reduction of pain (Anbar, 2001; Ball, Shapiro, Monheim & Weydert, 2003; Duarte et al., 2006; Walco & Illowite, 1992). In two studies (Anbar, 2001; Ball et al., 2003) visualization was part of an intervention for children who experience abdominal pain. Anbar (2001) and Ball et al. (2003) enrolled participants diagnosed with functional abdominal pain (FAP), or recurrent abdominal pain in the absence of an identifiable physiologic cause. In both Anbar and Ball et al.’s studies participants were asked to create their own visual images of what their pain looked like and then to imagine the pain disappearing (Anbar; Ball et al.). Imaginative visualization was also part of cognitive behavioral interventions for pediatric chronic pain (Duarte et al., 2006; Walco & Illowite, 1992). In Walco and Illowite’s study, participants were prompted to create visual images that represented a metaphor for their pain experience and to alter the metaphor with the intention of changing their perception of pain. Discussion with the therapist to help generate a concrete metaphor was part of
Walco and Illowite (1992)’s protocol. In a study of CBT as a family intervention, Duarte et al. (2006) included imagination in a limited way as a distraction strategy.

The positive results reported in the above studies (Anbar, 2001; Ball et al., 2003; Duarte et al., 2006; Walco & Illowite, 1992) need to be weighed against the limitations in methodology and other aspects of study design. While Ball et al. (2003) reported a significant decrease, within 2 months of the start of the intervention, in the mean number of days that children experienced an episode of pain, the Ball et al. (2003)’s study enrolled only 11 participants and participants were limited to children who were non-responsive to conventional treatments. Anbar (2001) also reported positive results stating that 4 out of 5 patients stopped experiencing pain within 3 weeks of the start of the intervention which was a single session of instruction in self-hypnosis. However, methodological problems with Anbar’s (2001) study include a lack of standardized measures to assess a change in pain, lack of a standardized protocol for teaching visualization, and a small, homogenous sample. Walco and Illowite (1992) reported that 5 participants described absent or negligible pain after 4 to 9 sessions of a CBT-based intervention. Methodological problems with Walco and Illowite (1992)’s study include lack of a control group. Using a control group may have helped to determine how much of the reported improvement was due to increased attention from health care providers instead of directly related to the CBT intervention. Duarte et al. (2006)’s study, described as a cognitive behavioral family intervention, enrolled 32 participants between ages 8 to 17 with recurrent abdominal pain (RAP). Duarte et al. reported a significant difference between the intervention group and control group in decreased frequency of pain after the second of four sessions. Interventions were individualized from a selection of behavioral
and cognitive procedures. In Duarte et al. (2006)’s study only one outcome measure was used, a visual analog scale, and there were no outcome measures that assessed individual components of the CBT intervention. It is therefore unclear how much or if at all, imagination played in the outcome.

Studies by Anbar (2001), Ball et al. (2003), Duarte et al. (2006), and Walco and Illowite (1992) are of interest for the present study because they raise the question of whether children’s use of metaphor or imagination may help them change their perception of chronic pain. The above four studies used interventions that included a number of techniques in addition to prompts for children to use their imagination. The impact of any one part of the interventions, such as requesting that a participant create an imaginative visualization, on the reported reductions in pain was not studied. A question related to the above studies, and that pertains to the present study, is whether the inclusion of a component that asks participants to use imagination has an impact on a children’s perception of pain. Other questions related to the present study are how including an imaginative visualization may have affected, if at all, other parts of the intervention protocols, and in this way contributed to the reported changes in perception of pain.

Component 5: Attention

Attention represents an awareness that shares qualities of mindfulness, as mindfulness is defined in the present study, and that may be experienced in the art therapy process. Component 5 represents an aspect of experience in art therapy that may contribute to developing a greater awareness of what may be accepted. Concepts in this component are informed by research in the topical areas of acceptence, mindfulness for
pediatric chronic pain, and art therapy theory and practice. The largest number of sources comes from art therapy, which reflects the larger number of art therapy than mindfulness-related sources in the data. Art therapy sources include theoretical discussions of how the art therapy process may benefit individuals, and clinical examples. The operational definition of mindfulness is from a single author/researcher (Kabat-Zinn, 2003). The Mindfulness-related sources contributing to Component 5 include two research studies. One mindfulness related study is a pilot study (N=5) that investigated the use of mindfulness training for reducing anxiety in children (Semple et al., 2005). Semple et al.’s study related to the subcategory Sensory experience through the informal observation that participants were enthusiastic about exercises using sensory experiences and metaphors (Semple et al). The other mindfulness-related study is a case study of a 9 year old girl with nausea and epigastric pain caused by gastroesophageal reflux (GER) (Ott, 2002). Ott reported that the patient was able to reduce symptoms of GER by practicing mindfulness meditation. Results included detailed descriptive information about changes in the participant’s awareness of her body and of pain related to GER. Ott (2002)’s study may have been strengthened by including quantitative measures and a standardized protocol for meditation instruction.

Attention is a component with a meaning similar to that of mindfulness as it is defined in the present study. The operational definition of mindfulness is: “… the awareness that emerges through paying attention, on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p.145). Component 5 represents an awareness that shares some qualities of mindfulness, and that may be experienced in the art therapy process. Qualities of mindfulness that
overlap with aspects of working in an art therapy session are paying attention in the present moment and paying attention without judgment. Subcategories of Component 5 are Sensory experience and Awareness in art therapy.

Subcategory #1 of Component 5: Sensory Experience

The subcategory Sensory experience represents the idea of introducing mindfulness to children through experiences that involve smell, taste, touch or physical sensations (Ott, 2002; Semple et al., 2005; Thompson & Gauntlett-Gilbert, 2008). Experiences involving smell or other senses are used as starting points for understanding mindfulness. For example, children were introduced to mindfulness meditation through experiential exercises involving smelling, eating, walking, and noticing physical sensations in the body (Ott; Semple et al.; Thompson & Gauntlett-Gilbert). A piece of fruit was used to explain the difference between labeling and describing—the smell and taste of the fruit elicited thoughts and feelings which children were encouraged to notice and experience, but not to judge (Semple et al., 2005).

Subcategory #2 of Component 5: Awareness in Art Therapy

The subcategory Awareness in art therapy further defines the definition of Component 5. Subcategory 2 identifies aspects of art therapy that may be parallel to qualities of mindfulness. Descriptions of a type of awareness that may occur in art therapy, and that shares qualities of mindfulness, are noted in discussions about the role of media in the art therapy process (Case & Dalley, 2006; Lusebrink, 1990; McNiff, 2001). The subcategory Awareness in art therapy is supported by sources that describe a type of awareness experienced in art therapy that is recognized as sharing qualities with the operational definition of mindfulness. Qualities of mindfulness are recognized in art
therapy literature that addresses the role of media in the art therapy process (Case & Dalley, 2006; Lusebrink, 1990; McNiff, 2001; Rubin, 1999). This subcategory includes sources that indicate that properties of art media may facilitate discovery of ideas and emotions. In this subcategory, interaction with media within a safe therapeutic relationship is identified as a necessary framework for experiencing qualities of mindfulness.

A quality of mindfulness that is described as “…paying attention in the present moment…” (Kabat-Zinn, 2003) is identified as similar to an experience in art therapy described as an organizing effect (Case, 1987; Lusebrink, 1990; McNiff, 2001; Rubin, 1999). The limited number of art therapy sources that are cited in this subcategory, seem to suggest that a patient’s interaction with media in an art therapy session involves a coordinated use of senses (vision, touch) that is paralleled by some level of organization in conscious processes. In the literature there seems to be a connection between providing a choice of media that is appropriate for a patient and the patient’s ability to focus on what he is doing. In this subcategory the coordination between senses and conscious processes that is theorized to be part of the art therapy process is likened to a mindful state of awareness. For example, children who are given media appropriate for their emotional needs and physical abilities are reportedly able to engage in a creative process that brings their attention to the present moment (Case & Dalley, 2006; Rubin, 2005; Wadeson, 2000; Wood, 1984).

Properties of art media that are reported to contribute to a patient’s ability to focus or pay attention in an art therapy session may also facilitate discovery of ideas and emotions. For example, clay is a media in which parts can be added or removed (Case &
Dalley, 2006) and may facilitate problem solving. Flexible material is a good choice for exploring overwhelming emotions as a variety of shapes may need to be created in order to find clarity (Landgarten, 1981). Combining materials may be useful for creating metaphors that patients use to understand inner states (Case & Dalley, 2006; Mallay, 2002). For example, mixing colors to make a new color may represent a transition or change in perspective (Case & Dalley, 2006). Descriptions of the art therapy process report that finding a media that is best suited to a particular child at a particular time, can lessen defenses, promote therapeutic work and allow a child to move into a less restrictive state of mind (Case & Dalley; Wadeson, 2000; Wood, 1984).

The second component of mindfulness that was identified as an aspect of the art therapy process was: “…paying attention without judgment…” (Kabat-Zinn, 2003). A quality of attention without judgment towards the client and all art products was described as part of a therapeutic environment (Naumburg, 1966; Robbins, 1998; Russell, 1995; Wood, 1984). In a non-judgmental therapeutic environment a child is able to discover an emotion such as hurt without being labeled as angry or bad (Wood).

The type of awareness that mindfulness defines was also identified in an art therapy model called the expressive therapies continuum (ETC) (Lusebrink, 1990). The ETC is a model that describes interaction with media through progressive levels: kinesthetic-sensory, perceptual-affective, cognitive-symbolic and a creative level (Lusebrink, 1990). Lusebrink (1990) describes the kinesthetic-sensory (K/S) level as a state of mind that is governed by less conscious control, but involves a connection to the sensory world through touch and recognition of forms. The K/S level of work in art therapy, and mindfulness, both involve a state of attention that does not judge or attempt
to control what is happening. In mindfulness one is not judging thoughts, feelings, or sensations that arise. In many art therapy experiences one is not controlling the imagery that emerges.

Core Category, Discovering Possibilities through Acceptance

In this section the meaning of the core category and how it is recognized within each component of the approach will be described. Please refer to Figures 2, 3, 4, 5 and 6 which show the interactions between components and subcategories that are described in this section. The figures are included in the section immediately following this section called Visual Presentation of Components.

The core category is called Discovering possibilities through acceptance and suggests how acceptance may function in the Art Therapy Acceptance Approach. The meaning of the term acceptance in the core category is more closely related to the operational definition of acceptance as a component of mindfulness meditation than to its meaning defined by Acceptance and Commitment Therapy (ACT). The operational definition of acceptance as a component of mindfulness is: “Acceptance means seeing things as they actually are in the present….a willingness to see things as they are.” (Kabat-Zinn, 1990, p.38-39). The operational definition of acceptance, defined by ACT, is a state of mind that observes thoughts and feelings without trying to change them, and that supports decreased avoidance of valued activities despite the presence of chronic pain (Dahl & Lundgren, 2006; Hayes, 2004). The core category emerged from examples in the data of how acceptance led to discovering possibilities or finding options for coping with chronic pain. The core category is identified within the different contexts of the five components of the approach. The name of the core category in Figures 1 through
6 is shown as an arc underneath the shapes that represent the other components. The position of the core category in these figures is meant to convey that it is an underlying theme that informs many aspects of the approach.

Core Category and Multiple factors

In relationship to Component 1, the core category describes acceptance within the context of caregivers and treatment of children with chronic pain. The core category suggests how acceptance may support a biopsychosocial approach to treating chronic pain. The biopsychosocial approach conceptualizes pain as a multi-dimensional experience that includes emotional responses, interactions with others, interaction with one’s environment and other factors. Adopting the biopsychosocial approach to treating chronic pain entails moving away from a model that focuses on finding a single cause and single curing treatment, and towards acceptance of the complexity of factors that may be involved. This process of acceptance theoretically involves caregivers’ accepting the reality that, in some cases, determining a single cause or a total cure for their child’s chronic pain is not likely. Accepting a biopsychosocial view of chronic pain may lead to considering options for treatment that were not previously considered, such as complementary treatments (Masters, 2006).

Core category and Therapeutic relationship

Discovering possibilities through acceptance is related to the interactive roles of the subcategories of Component 2. Interactive process represents collaborative work between therapist and patient in the art therapy process (Ball et al., 2003; Gabel, 1984; Tanaka, Kakuyama, & Urhausen, 2003; Winnicott, 1971). The subcategory Trust describes a quality of the therapeutic relationship that supports a patient’s ability to
discover and express emotions (Case & Dalley, 2006; Rubin, 2005; Tanaka, Kakuyama, & Urhausen, 2003; Wadeson, 2000). The subcategories of Component 2 have a reciprocal relationship that theoretically supports a patient’s acceptance of the therapeutic relationship. Building trust facilitates communication between patient and therapist. It seems that as trust develops, the therapeutic relationship, and acceptance of it, may also develop. Through some willingness to accept the therapeutic relationship the child may discover emotions that are part of his experience of chronic pain. Theoretically, a possibility found as result of acceptance of the therapeutic relationship is increased participation in therapy (Christie et al., 2006).

**Core Category and Developing Capabilities**

The identification of the core category in Component 3 suggests that acceptance, as a major part of the ATAA, may include acceptance of limitations and acceptance of capabilities. The acceptance of limitations is represented by examples in which a child’s acceptance of their own limitations seemed to allow them to find options for communication in the creative arts therapies (Fenton, 2000; Loewy et al., 1997; Mendelsohn, 1998; Muller, B.J, 1997; Palmer & Shepard, 2008; Wadeson, 2000). Limitations included restricted verbal capacity (Palmer & Shepard) due to age and impaired movement due to illness (Mendelsohn). An example of an option that children found for communicating were making detailed drawings that reflected their emotional reality (Fenton; Palmer & Shepard). Acceptance of limitations leading to discovery of possibilities for coping with chronic pain is a theme recognized in an Acceptance and Commitment therapy (ACT) study (Wicksell et al., 2007). In the ACT protocol participants were encouraged to accept previous failed strategies to change pain, and
study results reported a significant improvement in functional disability and school absence due to pain. Theoretically this suggests that participants’ acceptance of limitations in pain control was associated with greater possibilities for functioning in daily life.

The acceptance of capabilities is represented in the subcategory, *Self-regulation*. The incorporation of this concept into the ATAA means that in practice, a child could be encouraged to do more, or to accept that he has greater abilities than he has been using. In the area of Interventions for pediatric chronic pain, children’s capability to contribute to managing their chronic pain is suggested by studies in physical therapy (PT) (Lee et al., 2002; Sherry et al., 1999) and in the area of CAM (Anbar, 2001; Ball et al., 2003; Masters, 2006).

*Core Category and Imagination*

The overlap between the core category and Component 4, *Imagination*, suggests how the core category relates to metaphors and symbolic expression within the ATAA. Data suggest how Component 4 supports the process of acceptance. Examples from the topical areas of art therapy and medical art therapy suggest that the basic activity of making images in an art therapy context involves a process of acceptance (Henley, 2007; Russell, 2006; Wadeson, 2000). Metaphor, which involves imagination, is described as a structure with which children worked through uncertainty about acceptance of an injury (Russell, 2006), or acceptance of a course of illness (Henley, 2007; Wadeson, 2000). Component 4 represents a capability that may facilitate the process of acceptance or discovering possibilities for self-understanding.
Core Category and Attention

Component 4, Attention, represents an awareness that shares some qualities of mindfulness and that may be experienced in the art therapy process. Component 5 suggests aspects of art therapy that may contribute to identifying that which may be accepted. Aspects of experience in art therapy that may contribute to acceptance are those that are similar to the qualities of mindfulness described as paying attention in the present moment, and paying attention without judgment.

Visual Presentation of Components

This section includes a visual presentation of how the components of the ATAA interact to form an approach to art therapy. Figure 1 illustrates how all five components interact within the ATAA. Figures 2, 3, 4, 5, and 6 illustrate in greater detail how each component contributes to the overall approach.
Main components- art therapy acceptance approach (ATAA)

Multiple factors in pediatric chronic pain
Component 1
Contextual

Biopsychosocial model of pain

Therapeutic relationship
Component 2
Essential condition

Discovering possibilities through acceptance

Developing Capabilities
Component 3
Strategic condition

Attention
Component 5

Imagination
Component 4
Intervening condition

Figure 1. Components of Art Therapy Acceptance Approach (ATAA)
Component 1 - Multiple factors in pediatric chronic pain

Subcategory: Psychological factors

Subcategory: Parent and family factors

Imagination
Component 4

Therapeutic relationship
Component 2

Figure 2. Component 1, Multiple factors in pediatric chronic pain
Figure 3. Component 2, Therapeutic relationship
Component 3- Developing Capabilities

Multiple factors in pediatric chronic pain
**Component 1**

- **Self-regulation**

- **Developing Capabilities Component 3**

- **Non-verbal communication**

- **Therapeutic relationship Component 2**

- **Imagination Component 4**

- **Interactive process**

- **Discovering possibilities through acceptance**

Explore experience of chronic pain

Trust

**Figure 4. Component 3, Developing capabilities**
Component 4: Imagination

Multiple factors in pediatric chronic pain
Component 1

Therapeutic relationship
Component 2

Imagination
Component 4

Expression of emotions

• bringing to awareness
• acceptance

Developing Capabilities
Component 3

Developmental factors

Non-verbal communication

Discovering possibilities through acceptance

Figure 5. Component 4, Imagination
Multiple factors in pediatric chronic pain
Component 1

Attention - Component 5

• Bringing to awareness
• Acceptance

Attention Component 5

Discovering possibilities through acceptance

Figure 6. Component 5, Attention
The Roles of the Components in the ATAA

In this fourth section of the results the roles that the components and subcategories play in the theoretical ATAA are described. Please refer to Figures 1 through 6 which are presented in the previous section called Visual Presentation of Components. These figures show the interactions between components and subcategories that are described and referred to in this section.

Role of Component 1 in Approach to Art Therapy

Multiple factors in pediatric chronic pain is a contextual component that represents factors which may contribute to a child’s experience of pain. This definition is consistent with a biopsychosocial approach to pain and suggests that the art therapy treatment approach is most appropriately delivered as part of a multidisciplinary treatment program. Figure 1 shows Component 1 as a shape that spans the length of the other components which suggests its role as a context for the interactions of all the other elements in the model.

Subcategories of Component 1, Psychological factors and Parent and family factors, both impact and interact with Component 2, Therapeutic relationship. For example, the subcategory Parent and family factors includes the possibility that parent’s may view chronic pain from a biomedical rather than biopsychosocial model. Parent’s unfamiliarity with a biopsychosocial approach to pain could theoretically impact a child’s willingness to begin art therapy. The influence of the subcategories of Component 1 on Component 2 is shown in Figure 2 using unidirectional arrows from the subcategories to Component 2. Parents’ interest in finding a single cure for their child’s pain could result
in the child and parent feeling skepticism about a complementary treatment such as art therapy. This skepticism about treatment is directly relevant to how the child may respond to an art therapy approach incorporating acceptance. Theoretically, Component 1 may affect building trust and/or an interactive process, both part of the Therapeutic relationship (Component 2). The subcategory of Component 1, Psychological factors, impacts Component 2 in that children’s experience of anxiety and depression may affect the process of building rapport between therapist and patient.

Component 1 also interacts with Component 4, Imagination. Data describing Component 1’s subcategory Parent and family factors includes the example of parents’ reinforcing of a disability pattern in their child. An approach to coping with chronic pain that unknowingly emphasizes disability could theoretically influence how a child views himself and how he approaches art therapy. It may be difficult for the child to view himself as anything other than disabled. Component 4 identifies children’s use of metaphor to communicate with an art therapist. Within the art therapy process a child may be able to explore their feelings about disability, and explore possibilities for increased activity in combination with acceptance of pain. In Figure 2 the mutual influence between the subcategory Psychological factors and Component 4 is shown using a bidirectional arrow between shapes. The use of imagination and symbolic speech intervenes between the impact of parent and family factors on a child, and the possibility that the child will discover new options for living with chronic pain. Theoretically, use of imagination may help a child move from a position of restricted participation in activities, influenced by parents’ behavior, to a position of acceptance of some level of disability and increased participation in meaningful activities.
Role of Component 2- Therapeutic Relationship

Component 2, Therapeutic relationship is referred to as a causal condition and understood as an essential component of the Art Therapy Acceptance Approach. Establishing a therapeutic relationship is a condition needed for a patient to make use of the other components of the approach. Trust and the therapeutic relationship contribute to children’s ability to express emotions by providing an emotionally responsive environment in which to do so.

The two subcategories of Component 2, Trust and Interactive process have a reciprocal relationship in that building trust facilitates working in a collaborative way, and engaging in an interactive process helps to strengthen trust. The reciprocal relationship between these two subcategories is represented in Figure 3 with a bidirectional arrow between representative rectangles.

Potential interactions between Component 2 and Component 1 are described in the description of the role of Component 1—Parent and family factors may theoretically influence the child’s willingness to try art therapy treatment and Psychological factors may affect how trust is built in the relationship.

One of the functions of Component 3 is to encourage the therapist to recognize a patient’s cognitive and emotional capabilities and interests. This is considered an essential aspect of the ATAA and is represented in Figure 3 by the overlap between the shapes that represent Component 2 and Component 3. Component 2, Therapeutic relationship, supports Component 3, in that a patient’s capabilities are identified over time within the therapeutic relationship.
An interaction between Component 2 and Component 5, _Attention_, is also noted. The subcategory of Component 5, _Awareness in art therapy_, represents a potential experience of awareness that shares some qualities of mindfulness. For example an aspect of mindfulness described as “…paying attention in the present moment…” (Kabat-Zinn, 2003) may be facilitated in art therapy by providing media options to a patient that are appropriate for his emotional and physical needs (Case & Dalley, 2006; Rubin, 2005; Wadeson, 2000; Wood, 1984). Theoretically, Component 2 plays an important role in facilitating conditions described by Component 5 such as a patient’s ability to become involved in what is occurring in the moment in the art therapy process. Component 2 may affect Component 5 through the connection between the establishment of trust and a reduction in the patient’s anxiety. The patient’s ability to attend to what is happening in the present moment may be facilitated by experiencing decreased anxiety about interaction with the art therapist. The relationship between Component 5 and Component 2 is represented in Figure 3 with a bidirectional arrow between the subcategory _Trust_ and Component 5.

*Role of Component 3- Developing Capabilities*

_Developing capabilities_ is a strategic condition in the ATAA. It is considered strategic because it represents efforts or strategies that children use to communicate, or use towards managing aspects of chronic pain. Component 3 identifies capabilities of children used in treatment interventions in the area of complementary and alternative medicine (CAM) such as dance/movement therapy (DMT) and biofeedback. One of the functions of Component 3 is to encourage recognition by the therapist of the capabilities and developmental interests of patients. In the description of Component 3 and the data
sources that informed it (see Amplification of the Five Components), capabilities and developmental interests are identified in interventions aimed towards improvement in pain or functional outcome measures.

Subcategories of Component 3, Non-verbal communication and Self-regulation, provide further definition to its role in the approach. Non-verbal communication represents children’s abilities to use non-verbal modalities and symbolic language to communicate in therapy. The subcategory Self-regulation describes children’s ability to participate in managing aspects of their chronic pain. It is noted that this subcategory represents the abilities of a small sample of children within intervention settings and therefore does not provide evidence about children’s capabilities of managing aspects of pain outside of a controlled environment. Given this, in the present approach to art therapy, Self-regulation represents children’s capability of using and learning unfamiliar techniques to help manage their chronic pain. The role of Self-regulation in the ATAA is to emphasize that the art therapist needs to consider the cognitive and emotional capabilities of each patient. In the ATAA, a willingness to use one’s capabilities is developed within the art therapy relationship (Component 2).

Interaction between Component 2 and Component 3 is shown in Figure 4 through the overlap of the shapes that represent the subcategory Non-verbal communication (Component 3) and the subcategory Interactive process (Component 2). Both subcategories describe metaphor as a method of creating dialogue between therapist and patient. The connection between Component 2 and Component 3 shows that Non-verbal communication describes symbolic forms of communication that occur within a therapeutic relationship.
The role of Component 3 is also defined by its’ subcategory, Developmental factors. This subcategory suggests how cognitive and emotional developmental factors may be important in the application of the ATAA. Developmental factors expands the subcategory Non-verbal communication by describing a connection between children’s use of metaphors and analogies and their cognitive developmental stage. This influence is shown in Figure 4 by the arrow between corresponding the subcategories. The subcategory Non-verbal communication represents the use of metaphors and symbolic language in creative arts therapy modalities. The subcategory Developmental factors suggests another perspective for understanding children’s use of metaphors. The possibility that children with chronic pain in the concrete operational stage of cognitive development may be able to use metaphors to explore acceptance is strengthened by the subcategories Developmental factors and Non-verbal communication.

The subcategory Developmental factors also informs the subcategory Self-regulation. This is shown in Figure 4 with a unidirectional arrow from Developmental factors to Self-regulation. The self-initiation and learning that was suggested by children’s participation in self-regulatory treatments for chronic pain, is consistent with developmental milestones of school aged children. For example, learning biofeedback to decrease pain seemed to rely on school aged children’s ability to use cause and effect reasoning, an interest in improving performance, and a greater interest in experiential than abstract learning.

Role of Component 4- Imagination

The role of Imagination is an intervening condition, as it represents a capability that could become active within the therapeutic relationship and throughout the process
of exploring chronic pain and acceptance. Another way of describing the role of 
*Imagination* is as a beginning to the process of acceptance. Component 4 is a condition 
that enters the art therapy process within the structure of the *Therapeutic relationship* 
(Component 2), and that is supported in part by *Developmental factors* (subcategory of 
Component 3). *Imagination* may contribute to using metaphors to describe chronic pain 
and acceptance.

The subcategories of Component 2, *Trust* and *Interactive process* support the 
activation of imagination. This support is shown in Figure 5 with a bidirectional arrow 
between Component 2 and Component 4. Component 4 addresses the question of how 
children may approach acceptance of pain. The subcategory *Expression of emotion* 
suggests that metaphor may be used as a healthy defense mechanism. In some situations 
non-verbal metaphor may be more accessible to children than other methods of 
communication.

The interaction between *Therapeutic relationship* (Component 2) and *Imagination* 
(Component 4) also connects to a patient’s anxiety, which is represented by the 
subcategory of Component 1, *Psychological factors*. Anxiety is an inhibitor of 
imagination and therefore an essential role of Component 2 is to facilitate a reduction in 
anxiety that will allow the patient to use imagination in the art therapy process. The trust 
that is developed in the art therapy relationship may allow the patient to create an image 
or object that transforms anxiety into something that can be discussed. In Figure 5 an 
arrow from Component 1 to Component 2 represents the anxiety (and/or depression) that 
may be brought into the therapeutic relationship.
In Figure 5 an arrow is directed from the subcategory of Component 3, *Developmental factors*, to the subcategory of Component 4, *Expression of emotion*. This arrow shows that the use of metaphors as an ability associated with cognitive and emotional developmental (*Developmental factors*) supports data sources that describe children’s ability to use non-verbal metaphors in art therapy to express emotions about pain and illness (represented by *Expression of emotion*).

The subcategory *Visualizing pain* represents children’s potential ability to create a visual representation of pain. The research that informs this subcategory introduces the possibility that children may be able to create images or metaphors for pain using internal mental representations. The corresponding data sources however, do not provide enough evidence to indicate that children are able to do this or that such an exercise is beneficial to managing chronic pain. For these reasons this subcategory is less weighted in its contribution to the ATAA. In Figure 5 the minimal importance of this subcategory to the model is represented by its proportionally smaller size to other shapes.

*Role of Component 5- Attention*

*Attention* represents an awareness that shares some qualities of mindfulness and that may be experienced in the art therapy process. The qualities of mindfulness referred to are part of the operational definition of mindfulness used in this study. Component 5 represents an aspect of experience that may contribute to developing an awareness of what may be accepted. The contribution of the art therapy process and mindfulness to Component 5 is represented in Figure 6 by two shapes within the larger shape of *Attention*. The contribution of Component 5 to awareness of what may be accepted is indicated by the lower arrow pointing towards acceptance.
Component 5 describes the importance of the art therapist being familiar with a range of art media in order to best meet a patient’s physical and emotional needs. In the section of the Results called *Amplification of the Five Components*, it is noted that offering an appropriate choice of media may contribute to *paying attention in the present moment*. The ability of the therapeutic relationship to facilitate awareness and qualities of mindfulness is represented in Figure 6 by the arrow traveling *from* Component 2 *to* Component 5. Component 2 may also facilitate *paying attention without judgment*, also part of Component 5, through the therapist’s non-judgmental acceptance of the patient.
CHAPTER 5: DISCUSSION

Overview

The objective of the study was to develop an art psychotherapy treatment approach for pediatric chronic pain that incorporates acceptance. The objective of the study was met by answering the research question which asked: what are the components of an approach to art therapy, incorporating acceptance, which be used as a complementary treatment for children ages 7-12 living with chronic pain? Five components and a core category were identified through the grounded theory method of data analysis (Strauss & Corbin, 1998).

The discussion will begin with a review of the major findings presented in the Results: the Art Therapy Acceptance Approach (ATAA). The clinical applications of the ATAA are reviewed next. The approach is then considered in reference to the limitations in data sources that contributed to each component, followed by recommendations for future research.

Major Findings

The Art Therapy Acceptance Approach (ATAA) is a theoretical approach incorporating acceptance. The core category, called *Discovering possibilities through acceptance*, suggests how acceptance may function in the approach. The approach is conceptualized to take place within an expandable framework that represents multiple factors which shape a child’s experience of chronic pain. *Multiple factors in pediatric chronic pain* are represented by Component 1. The other components of the Approach exist within the biopsychosocial context outlined by Component 1.
Component 2, *Therapeutic relationship*, is the center of the approach around which other components interact and become active. The therapeutic relationship potentially provides an emotionally safe environment in which emotions and experiences may be explored. Capabilities that children may use in the ATAA, represented by Components 3 and 4 (*Developing capabilities* and *Imagination*), are made accessible through the essential condition of the *Therapeutic relationship*.

Component 3, *Developing capabilities*, recognizes non-verbal capabilities and developmental interests that are common to the concrete state of cognitive development (Beales et al., 1983; Culbert & Banez, 2003; Gaffney & Dunne, 1986; Goodill, 2005; Newman & Newman, 2006; Pulaski, 1980; Rosen, 1985), and that a patient may use in art therapy. The role of Component 3 is to encourage the art therapist to recognize a patient’s developmentally related capabilities and interests, and to use this information in practice. Theoretical capabilities and interests are described by the subcategories *Developmental factors, Non verbal communication*, and *Self-regulation*. In the ATAA, *Developing capabilities* represents the importance of considering a child’s level of cognitive and emotional development when interacting in the art therapy setting. As part of a theoretical approach Component 3 also represents the importance of considering the physiological aspects of the chronic pain condition, although the scope of data collection did not include sources that focused on physiological aspects of pediatric chronic pain.

Component 4, *Imagination*, is a valued capacity in the ATAA as it offers a potential means for children to lead the therapy process towards the themes that are most important to them. Component 4 represents children’s ability to use their own non-verbal language to explore emotions, experience and acceptance, within the therapeutic
relationship. Sources supporting the components *Imagination* and *Developing capabilities* provide some support for the use of metaphors for expression and communication by children in the concrete stage of cognitive development.

Component 5, *Attention*, introduces the possibility that experiences in art therapy may contain some aspects of mindfulness, which may in turn support an experience of acceptance.

**Clinical Applications**

In this section the clinical recommendations of the approach will be described. The recommendations include the appropriate context for the practice of the ATAA and assessments that may be used to inform treatment planning based on the components of the ATAA. Recommended clinical assessments are organized as individual art therapy and family art therapy assessments. The contribution of the art therapist to the treatment team is also reviewed.

*Art Therapy in a Multidisciplinary Setting*

The research question addressed the development of an art therapy approach as a complementary treatment. The ATAA is conceptualized as consistent with a biopsychosocial model of pain and was identified as consistent with the intentions of multidisciplinary or rehabilitation approaches to treatment of chronic pain (Bursch et al., 1998; Christie et al., 2006; Clinch & Eccleston, 2009).

A rehabilitation approach emphasizes improvement in functioning (Bursch et al., 1998; Christie et al., 2006) and encourages families to refocus their attention from searching for a cause of pain to considering how to support their child’s abilities (Christie et al.). The components of the ATAA shape an approach that is centered on the
therapeutic relationship and on providing an emotionally safe structure in which a child may explore his experience of chronic pain and explore how acceptance may impact his daily experience. Within the data that informed the ATAA, acceptance was operationally defined as a willingness to see things as they are (Kabat-Zinn, 1990) and defined as a support for decreased avoidance of activities despite pain (Hayes, 2004). Both aspects of the operational definition of acceptance are consistent with a lack of emphasis on symptom reduction or on elimination of pain. The ATAA’s emphasis on exploring experiences, accepting limitations and capabilities, and on using imagination to understand how pain functions, is consistent with a rehabilitative approach. Because the ATAA is complementary, it exists alongside other treatment modalities like pharmacological options or physical therapy (PT) that may support a child’s ability to participate in art therapy.

**Clinical Assessments**

The application of the ATAA requires that the art therapist consider the cognitive and emotional developmental level of the child who experiences chronic pain. It is recommended that use of the ATAA model begin with assessment. It is essential to assess the patient’s cognitive level of development at the start of treatment and to continue to assess changes throughout treatment. It is also recommended that the art therapist assess the patient’s level of anxiety and depression, as these conditions when present interfere with the child’s ability to use imagination and engage in a therapeutic process. Use of media to assess aspects of attention, described by Component 5, is also recommended. In addition to individual art therapy assessments, a family art therapy assessment is recommended as a means of addressing clinical implications of Component 1. In ongoing
clinical practice with the ATAA model it is recommended that the art therapist continue
to monitor the impact of parent and family dynamics on the child’s experience of pain. It
also recommended that ongoing family art therapy treatment be considered.

In the following sections recommendations are organized in the sequence in
which they should be applied in the use of the ATAA.

**Individual Art Therapy Assessments**

In this section recommendations for assessments to be used in the clinical
application of the ATAA model are presented. This section is organized into paragraphs
titled *Assessment of anxiety and depression, Cognitive and emotional ability to use
metaphor*, and *Assessment of attention*.

*Assessment of anxiety and depression.* The subcategory of Component 1,
_Psychological factors_, describes symptoms of anxiety and depression as part of many
children’s experience of chronic pain (Clinch & Eccleston, 2009; Kashikar-Zuck et al.,
2008; Kozlowska et al., 2008; Sallsforth, Fasth & Hallberg, 2002). Symptoms of anxiety
and/or depression may theoretically affect the development of a therapeutic relationship
(Component 2, *Therapeutic relationship*) or the patient’s ability to use imagination
(Component 4, *Imagination*).

Art therapy assessments that may be used to assess anxiety and depression include
the directive titled Draw-A-Person-in-the-Rain or a directive that suggests the struggle
with pain in metaphorical terms such as “A Monster that stops a boy from going to
school” or “A Monster that stops a boy from doing things with his friends.” (It is noted
that Draw-A-Person-in-the-Rain has not been attributed.) A free drawing which gives an
open choice of media without a directive may also be used to assess general aspects of a
patient’s emotional state. Draw-A-Person-in-the-Rain and the above monster directives describe the problem of chronic pain as an obstacle, but as creative exercises, leave room for a child to consider how he might work with the obstacle to live a more satisfying life. Both directives may reflect aspects of anxiety and/or depression in how the child portrays the boy in relation to the rain, or in relation to the monster. Is the boy cowering in a corner next to a frightening monster or is he frantically running away from the monster?

The ATAA model suggests that a child may be able to use imagination and metaphors to explore his experience of chronic pain and acceptance. Imagination is not readily accessible when a patient experiences a high level of anxiety. An initial assessment that provides information about the child’s level of anxiety and depression will help the art therapist to formulate a treatment plan.

Cognitive and emotional ability to use metaphor. It is recommended that the art therapist conduct individual art therapy assessments that provide information about a child’s level of cognitive and emotional development. In application of the ATAA model it is important to determine if a child is able or interested in using metaphor. The ATAA model suggests that children’s ability to use metaphor and story is a potential method through which children may benefit from acceptance.

The role of Component 3 in the ATAA suggested the importance of assessing a child’s level of cognitive and emotional development. Data contributing to the subcategory of Component 3, Developing capabilities, described use of metaphor as an ability related to a child’s stage of cognitive development (Beales et al., 1983; Gaffney & Dunne, 1986). The level of development suggested by a patient’s artwork may give clues as to whether the child is operating at a different level of development in therapy than
their chronological age suggests. Beales et al. (1983) described observations by Piaget which indicated that children may not be at the same stage of development in every area of activity. The clinical environment and treatments of any kind, including art therapy, may initially be associated with stress. Stress from illness may be evident by indicators of regression in artwork. For example, regression was noted in artwork by children with arthritis pain in an art therapy study that compared pain perceptions of children with pain perceptions of their caregivers (Barton, 1999). A specific example of regression may be scribbling by a child who is older than 3 or 4 years. A 10 year old typically draws complete figures and representations with detail that reflect awareness of his environment. Scribbling is associated with children between approximately ages 2 and 4 years. Noticing regression in a patient’s artwork is important because it will provide the art therapist with information about how to communicate with the patient. Children who are operating on a pre-operational level of cognitive and emotional development will not be able to use metaphors or analogies to describe their experience of pain. Children at a pre-operational level use literal interpretation (Beales et al., 1983) with the consequence that referring to pain using metaphor may lead to added fear or anxiety.

An art therapy directive that may provide information about a child’s ability to use metaphors is a question such as “What kind of animal does your pain act like?” or “Can you draw a picture of an animal that reminds you of how your pain felt this week?” The art therapist might suggest that she and the patient make a list of animals that come to mind if the patient has initial difficulty responding to the question. Asking the child to compare his experience of pain to qualities of an animal requires the cognitive ability to compare knowledge of the world to aspects of personal experience. Responding to a
question using metaphor about his/her experience of pain also requires the emotional ability to identify emotions that are part of their experience and to identify an animal that best represents their emotional experience.

An additional art therapy assessment that may be used to evaluate cognitive development is the Silver Drawing Test (Silver, 1989). This assessment evaluates abilities to select and combine which are basic skills for language and creative thinking (Silver). The Silver Drawing Test (Silver) asks children to choose cards of people, animals and objects and to draw a picture with the cards they select. Information about how to rate drawings with the Silver Drawing test is included in assessment instructions.

Assessment of attention. Clinical recommendations related to Component 5, Attention, are designed to help the art therapist gather information about a child’s emotional needs and physical abilities. Component 5 and the subcategory Awareness in art therapy suggest that interaction with media that involves kinesthetic and sensory stimulation may support a state of attention that would contribute to acceptance. It is recommended that the art therapist offer media that involves stimulation of multiple senses such as a three-dimensional material called model magic or clay. Model magic is like clay but it is dry to the touch, and it is available in a variety of colors. How the child responds to media that is highly structured such as twist-up crayons, will provide information about when to introduce a three dimensional media such as model magic. For example, if a child shows signs of cognitive and emotional regression in an initial assessment drawing, the art therapist is advised not to offer a less structured media until the patient and the patient’s artwork reflects an age appropriate level of cognitive and emotional development.
Assessment of patient-family dynamics. The influence of parents on how their child copes with chronic pain was an aspect of Component 1, *Multiple factors in pediatric chronic pain*. An assessment drawing that may provide insight about the child’s relationship with her parents and family is the Animal Kinetic Family Drawing (AKFD). The AKFD is a modified version of the KFD (Burns & Kaufman, 1970), and asks the patient to “draw a picture of a family of animals doing something.” The AKFD may be emotionally less threatening than the KFD because it offers greater psychological distance between the patient and the subject of the drawing in the substitution of animals for people. A request for a family drawing of any kind may elicit anxiety and should only be given after sufficient trust in the therapeutic relationship has been established.

*Family Art Therapy Assessment*

A family art therapy assessment is recommended as a clinical implication of Component 1, *Multiple factors in pediatric chronic pain*. The subcategory *Parent and family factors* describe the reported impact of parents’ behavior on their child’s experience of pain (Christie et al., 2006; Councill, 2003; Guell, 2007; Kozlowska et al., 2008; McGrath & Hillier, 2002; Sallfors, Fasth, & Hallberg, 2002; Sartain, 2000). The theoretical role of Component 1 and the subcategory *Parent and family factors* includes the possibility that parents may unknowingly communicate their anxieties and fears about their child’s chronic pain condition to the child, and affect the child’s experience of chronic pain. The rationale for conducting a family art therapy assessment is that through projection of their emotions onto their child, parents may create a barrier preventing or affecting the child’s treatment. A family art therapy assessment may provide information about the parents’ emotional responses to their child’s experience of chronic pain, the
child’s responses to parents’ emotions and behaviors, or indications of members’ roles in the family system.

The Parent and family factors subcategory also represents the theoretical possibility that parents of children with chronic pain will view pain from a biomedical model rather than biopsychosocial model (Christie et al., 2006; Clinch & Eccleston, 2009; Kozlowska et al., 2008; Masters, 2006; McGrath & Hillier, 2002). The implication of this possibility is that it will limit the patient’s progress in treatment. A family art therapy assessment is also recommended as a way for a family to explore and learn to appreciate the multiple dimensions of pain.

Clinical Interventions

Individual Art Therapy

The ATAA is considered a treatment approach that takes place over time. The plausibility of children’s ability to use metaphors and stories to benefit from acceptance was supported by studies and literature that described the ability of children with chronic pain and other types of pain or illness to use metaphor (Councill, 2003; Henley, 2007; Landgarten, 1981; Palmer & Shepard, 2008; Savins, 2002; Vasarhelyi, 1990; Wadeson, 2000; Winnicott, 1971) and metaphoric storytelling (Gabel, 1984; Mallay, 2002; Russell, 1995; Sundaram, 1995) to explore their illness. The art therapist may introduce a directive such as “If your pain were an animal (or a creature or a color) what would it be?” that could evolve into a story created by the child. Within the metaphors used by the child the concept of acceptance may be recognized by the therapist and brought into therapy or the therapist may suggest it in the terms provided by the child.
It is recommended that the art therapist use assessments to continually evaluate the child’s artwork for developmental shifts— regressions and progressions. If the child is operating at a regressed level the application of the AATA model will change. For example, Component 5, *Attention*, may play a larger role than Component 4, *Imagination* if the child is unable to use metaphors. The focus at such a time may instead be on helping the patient to feel the support of the therapeutic relationship and to connect with sensory aspects of the art therapy process. The choice of media at this time is important because certain media may influence further regression.

The directives Draw-A-Person-in-the-Rain or “Draw a Monster that stops a boy from going to school,” are recommended as assessments but may also be useful as interventions that can be incorporated into longer term treatment. For example a monster that prevents one from going to school may become a friendly monster that helps the child get to school— a metaphor of acceptance. Using the rain metaphor, a child may find a way to accept the rain by creating a special rain coat, hat or umbrella that will help him walk in the rain and go to school or spend time with his friends.

*Family Art Therapy Treatment*

Family art therapy treatment is recommended in conjunction with individual art therapy treatment for the child with chronic pain. Ongoing family art therapy treatment may provide a means for parents’ to discover their own emotions related to caring for a child with chronic pain and for considering acceptance as part of a treatment approach. Family art therapy treatment over time may facilitate greater self understanding in parents of children with chronic pain and may result in parents’ increased awareness of their child’s feelings about living with chronic pain. Participation in family art therapy by the
family of a child with chronic pain, who is individually working with an art therapist within the ATAA, may increase the parents’ appreciation of art therapy. Because parents’ behavior is reported to play a role in children’s perception of pain and overall coping, family art therapy treatment (over a period of time) might be a way to address problems with intra-family relationships and cohesion (Masters, 2006; Palermo & Chambers, 2005).

**Multidisciplinary Team Approach**

It is recommended that the ATAA model be practiced in a multidisciplinary or interdisciplinary environment in which the art therapist is part of a treatment team. One example of a description of a psychosocial rehabilitation approach (Clinch & Eccleston, 2009) included a team that provided education, pharmacotherapy, psychological therapies, physical therapy and other therapies, such as complementary therapies. In such a setting the art therapist may receive referrals from other team members. For example, a team member such as a physical or occupational therapists might refer a patient with chronic pain to the art therapist if the patient is displaying a high level of frustration related to pain. Use of the ATAA model could theoretically provide an emotionally safe environment for expression of emotion and exploration of acceptance. Within a team setting an art therapist may gain information that is useful to other team member or parents. For example if a child is displaying resistance in physical therapy (PT) the art therapist may be able to explore this resistance with the patient and provide insight to the team that may suggest how to help the child move forward with treatment.
Clinical Emphasis of ATAA

The ATAA contains aspects of both the art psychotherapy approach developed by Naumburg (1966) and the art as therapy approach developed by Kramer (Rubin, 1999; Wadeson, 1987). In practice, these are not separate approaches but are part of a continuum. For purposes of discussion the original terms are used. Similar to the art psychotherapy approach is the idea that visual images made in art therapy symbolically represent emotions and fantasies. For example, in art therapy case studies, children with chronic pain represented fears and other emotions related to pain using metaphors. Metaphors may contain emotions that are important to explore in the process of discovering what can be accepted.

An aspect of the art as therapy approach that overlaps with the ATAA is the theory that the creative process in art therapy can be a synthesizing experience (Wadeson, 1980). In the ATAA, synthesizing theoretically referred to a level of coordination between the patient’s physical, sensory based experience and communication of thoughts and emotions. The Attention component of the ATAA suggested that a child’s engagement with media and their ability to become absorbed in non-verbal activity may facilitate paying attention to what is occurring in the moment.

The ATAA was also compared to a cognitive behavioral therapy (CBT) approach to art therapy. A CBT approach to art therapy differs from the ATAA in its focus on eliminating or decreasing symptoms, and use of images to convert negative thoughts to more logical or positive ones. Rosal (2001) states that in a cognitive behavioral approach a patient may be asked to create a visual representation of internal speech then change it as a way to alter negative thought patterns or to represent a goal of therapy. In
comparison, the focus of the ATAA is not on decreasing symptoms, but on introducing a different way to consider factors that are part of the chronic pain experience. Instead of focusing on changing illogical thoughts, the ATAA is centered on discovering sensations, thoughts, or emotions that may be preventing the patient from optimally using their abilities. For clarification, although altering images to change negative thoughts is not a specific aspect of the ATAA, it is not inconsistent with the approach as creating stories and metaphors can involve trying-out new emotions and in that sense the image may represent a desired future. In the ATAA, the focus is less on changing internal dialogue than supporting the patient in externalizing feelings about and describing the chronic pain experience to gain awareness of what may be accepted. The ATAA intends for a child to begin to explore the difference between what is in his control and what might be accepted via using imagination and metaphor. The ATAA shares the view of cognitive behavioral oriented art therapy that thoughts and feelings are precursors to behavior. It differs from a CBT art therapy approach in that behavior change is not the focus. However through use of ATAA behavior change could result from a child’s discovery of some aspect of their pain experience that may be accepted.

Limitations in Data Sources

The Art Therapy Acceptance Approach (ATAA) was developed from different types of literature sources. Therefore the quality and the quantity of the data sources that informed each component of the ATAA necessarily limited its validity. Research methodologies represented among the five topical areas of data collection included critical reviews of the literature, experimental quantitative studies, pilot studies, case studies and book chapters with descriptions of clinical experiences. Within the limitations
of qualitative and quantitative research, each study contained unique limitations. It was beyond the scope of the present study to numerically rate all of the sources based on qualitative and quantitative criteria. In the Results chapter an attempt to address the issue of the quality of the data was made by including an evaluation of research. Evaluation of studies was also included in the literature review.

In the following section several of the most important limitations in data sources will be discussed. How these limitations in data sources impacted components of the model, and implications for clinical application of the model are also included. The data sources with the greatest limitations contributed to the topical areas of acceptance, complementary and alternative medicine (CAM) therapies (within the larger area of Interventions for pediatric chronic pain) and pediatric art therapy and chronic pain (within the larger area of Art therapy).

**Limitations in research incorporating acceptance and Acceptance and Commitment Therapy (ACT)**

**Limitations in Sources**

A limitation in literature that contributed to the topical area of acceptance was the paucity of research examining the impact of a treatment approach that incorporates the concept of acceptance for children who experience chronic pain and who are approximately ages 7 to 12 years. Acceptance was found to be the focus of a number of studies investigating its impact on factors associated with functioning in adults who have chronic pain (Dahl & Lundgren, 2006; Vowles, McCracken & Eccleston, 2008; Vowles, McCracken & Eccleston, 2007), but no comparable studies with participants of school age were found.
A small body of research incorporating acceptance as part of a therapeutic approach, called Acceptance and Commitment Therapy (ACT) was identified. However, only a limited number of research involving adolescent participants was identified (Wicksell, Melin, Lekander & Olsson, 2009; Wicksell, Melin & Olsson, 2007). Wicksell et al. (2007) enrolled participants between ages 13 and 20 years. Wicksell et al. (2009) enrolled participants between ages 10 and 18 years which include a small overlap with the age range specified by the present literature based study (ages 7 to 12 years). A secondary source of data was a book chapter that described the main tenets of ACT and how ACT may be introduced to children in a therapeutic intervention (Wicksell & Greco, 2008). The chapter by Wicksell & Greco (2008) described the application of ACT for children, but did not specify an age range. Limitations of Wicksell et al. (2007)’s study, other than the age range, was a small number of participants (N=14), lack of a control group, and lack of a standardized treatment protocol. Limitations of Wicksell et al. (2009)’s study, other than age range, was reliance on only on one type of assessment instrument (self-report scales), and a lack of evaluation of therapist competence and adherence to protocol. A more detailed description of statistical limitations in Wicksell et al. (2009)’s study is included in the section of the Literature Review called Acceptance and commitment therapy (ACT) for pediatric chronic pain.

Components Impacted by Limitations

The topical area of ACT for pediatric chronic pain informed Component 4, Imagination, and specifically the subcategory Introducing concepts. There were two main limitations in the data that informed this subcategory (Wicksell & Greco, 2008; Wicksell, Melin, Lekander & Olsson, 2009; Wicksell, Melin & Olsson, 2007) First, limitations in
the sources revealed that there was no research evidence identified that examined the use of metaphor to introduce acceptance to children. Second, source limitations revealed that the outcome research that was identified did not assess whether the use of metaphor in the treatment protocol contributed to reported improvements in outcome measures.

*Implication for Practice of ATAA Model*

The limitations described above suggest that there is limited research support for an intervention in which the therapist uses metaphor to introduce acceptance to children with chronic pain ages 7 to 12. The practical implication of this for the ATAA is that the incorporation of acceptance in an ATAA treatment intervention should rely more heavily on children’s ability to create their own metaphors rather than the therapist introducing metaphors for acceptance. In clinical practice, the art therapist may ask children questions that elicit a response that requires the child to create their own metaphor.

*Limitations in Art Therapy Research*

*Limitations in Sources*

Limitations in data sources were identified in the topical areas of art therapy with children, medical art therapy, and pediatric art therapy and chronic pain. One limitation was the paucity of research found at the intersection of the literature of art therapy and children who have chronic pain. Another limitation was the lack of research studies other than case studies. Case studies in medical art therapy however, were valuable in the level of detail provided.
Components Impacted by Limitations

Data sources in the topical area of art therapy contributed to Components 2, 3, 4 and 5. However, a larger quantity of art therapy sources contributed to Components 2 and 4 than Component 3.

The art therapy sources that contributed to Component 2 and to its subcategories, *Trust*, and *Interactive Process*, were mainly descriptions of clinical interactions in book chapters. Two case studies from art therapy journals and one outcome study in art therapy also contributed to Component 2. One limitation of narrative descriptions of clinical experience is that the author’s bias may affect the descriptions of the cases and any suggested conclusions. The subcategory *Interactive Process* was supported by fewer sources than the subcategory *Trust*. The subcategory *Trust* was substantiated by a greater number of art therapy sources, and by sources in the other creative arts therapies of DMT and MT. *Interactive process*, however, was supported by fewer art therapy sources and two sources that described the use of a collaborative drawing story by verbal psychotherapists rather than art psychotherapists.

The art therapy sources that contributed to Component 4, in the subcategory *Expression of emotion*, were supported by case studies in medical art therapy, descriptions of clinical practice in art therapy, and one qualitative study using a grounded theory method of data analysis (Sallfors et al., 2002). *Expression of emotion* represents children’s use of metaphor to express emotions. The subcategory *Expression of emotion* is supported by a greater number of sources than *Introducing concepts*, and sources that provide detailed descriptions of how pediatric patients use metaphors (Henley, 2007; Russell, 1995; Sallfors, Fasth, & Hallberg, 2002; Sundaram, 1995). Many case studies in
medical art therapy were detailed and provided descriptions of children’s emotional reactions to their experience of illness and chronic pain, and descriptions of how making an image that contained metaphor seemed to succeed in describing the complexity of their experience. However, there are also limitations in the sources that inform the subcategory *Expression of emotion*. For example, most of the studies in application of art therapy that aimed to explore the use of metaphor by children with pain or other illness were case studies. A limitation of case studies is lack of generalizability.

*Implication for Practice of ATAA Model*

The evaluation of art therapy sources that contributed to Component 2 of the ATAA model suggest that in practical application of the model, the use of collaborative drawings (represented by the subcategory *Interactive Process*) between patient and art therapist should be limited. In contrast the effort and emotional responsiveness of the therapist should be directed towards establishing trust so that the patient is able to describe their own story.

The evaluation of art therapy sources that contributed to Component 4 concluded that the subcategory *Expression of emotion* is supported by more robust research than the subcategory *Introducing concepts*. The implication of this for the clinical application of the ATAA model suggests that the incorporation of acceptance in an ATAA treatment intervention should rely more heavily on children’s ability to create their own metaphors rather than the therapist introducing metaphors for acceptance.
Limitations in Sources

Limitations shared by many studies in the topical area of complementary and alternative medicine (CAM) therapies were a small number of participants, the use of non-standardized outcome measures and the use of non-standardized intervention protocols that included unclearly defined variables. It was noted that all of the cited CAM studies enrolled 35 or fewer participants.

Components Impacted by Limitations

Data sources in the topical area of CAM therapies mainly contributed to Components 1 and 3. Only a small number of studies of CAM therapies contributed to Component 4, *Imagination*, and none at all to Component 5, *Attention*.

Research in CAM therapies contributed to Component 1 in an equal amount as did research in the topical area of pediatric chronic pain. Overall, CAM studies seem of a poorer quality than studies drawn from the pediatric chronic pain literature. Research in CAM therapies contributed specifically to Component 1 in the subcategory of *Parent and family factors*. An observation about these studies was that many reported the inclusion and participation of parents in intervention protocols. However, only two of the studies that reported inclusion of parents mentioned the impact on outcomes. These two studies reported a positive impact of parents’ participation in interventions on the child’s ability to manage chronic pain; one was a qualitative ethnographic study and the other a clinical case study. The inclusion of parents in interventions suggested that parent’s may play a role in children’s ability to manage chronic pain but it is unclear what role, as few studies examined the influence of parents’ participation on outcome. The impact of this
observation on the clinical application of the ATAA model may be to note that there is
minimal research about parents’ participation in CAM interventions.

The largest number of sources contributing to Component 3, Developing
capabilities, were in CAM therapies. Literature in CAM therapies, other than the creative
arts therapies, mainly contributed to the subcategory of Component 3, Self-regulation.
The methodological problems with CAM studies that contributed to this subcategory
impacted its validity and the validity of the ATAA. (Limitations in CAM studies that
contributed to this subcategory are described in detail in the Results chapter.)

Implication for Practice of ATAA Model

Of the CAM studies that contributed to the subcategory of Component 3, Self-regulation,
four reported significant improvements in pain measures but only two of
these enrolled participants of the same age range as this study (other studies enrolled
participants ages 11 and older). While there was a limited amount of research about CAM
therapies the design of the studies made it difficult to understand how the limitations in
data sources may impact the AATA. The relevance of the CAM studies that contributed
to Component 3 in the development of the results was that the studies suggested that
children were able to learn techniques that involved self-control of physiological and/or
cognitive processes. However, the studies that informed Self-regulation (Anbar, 2001;
Ball et al., 1998; Bussone et al., 1998; Duarte et al., 2006; Kashikar-Zuck et al., 2005) did
not examine how well children were able to learn self-regulatory techniques. Instead
these studies measured changes in pain symptoms such as frequency of pain (Duarte et
al., 2006). The limitations in quantity of research, in methodology, and in study design
made it unfeasible to assess whether school-aged children can contribute to managing
their chronic pain when participating in self-regulatory complementary therapy interventions. It is suggested that the issue of whether children can contribute to managing their chronic pain be studied further.

Limitations in Sources Related to Cognitive Development and Metaphor

Limitations in Sources

Limitations in the data sources that contributed to the subcategory Developmental factors, a subcategory of Component 3, were a limited number of primary research studies. The results of the primary research studies (Gaffney & Dunne, 1986; Beales et al., 1983) are described in the Results’ section Amplification of Components. Limitations in primary research related to the concrete stage of cognitive development and use of metaphor may be due to the scope of data collection in the present study or to the amount of published research in this area. Because the data collection was limited it is unclear which of these reasons apply. A limitation of Gaffney and Dunne (1986)’s study was that it examined the ability of children to provide a verbal definition of pain. It may be that children are able to use non verbal metaphors at an earlier age than verbal metaphors. Such research may already exist and was not identified due to the scope of data collection. A limitation of Beales et al. (1983)’s study was that the investigator both interviewed participants and categorized qualitative responses, which may have introduced bias. Both Gaffney and Dunne’s and Beales et al.’s research is described in more detail the Literature Review chapter.

Components Impacted and Implication for Practice of ATAA Model

The impact of limitations in data sources that contributed to Component 3 and the subcategory Developmental factors, on the ATAA model, is related to the essential
question of whether children in the concrete stage of cognitive development may be able to use metaphor to explore chronic pain and acceptance. Children’s ability to use metaphor was also supported by qualitative sources in the creative arts therapies which contributed to a second subcategory of Component 3, *Non-verbal communication*, and to the subcategory of Component 4, *Expression of emotion*. The primary research that supported *Developmental factors* was distinct from other sources describing children’s use of metaphor in making an association between the ability to use metaphor and the concrete stage of cognitive development. The limitations in the number of primary sources that contributed to this subcategory weaken the potential for metaphor to be used as a means of exploring acceptance in the clinical application of the ATAA. Use of metaphor relies on cognitive skills and imagination, and therefore the role of Component 4, *Imagination*, in the ATAA may be changed by limitations in the above data sources. It is possible that children who are unable to use metaphor may be able to use reasoning and other cognitive skills to explore acceptance, but these skills are emphasized less in the ATAA model than is imagination.

*Limitation in Distribution of Sources among Components*

There may also be a limitation in the validity of the ATAA model due to the distribution of different types of research among the five components of the approach. There were a fairly equal number of qualitative and quantitative sources that informed Components 1, 3, and 4 (*Multiple factors in pediatric chronic pain, Developing capabilities* and *Imagination*). As a result, one might consider these three components to be more valid than Components 2 and 5 (*Therapeutic relationship* and *Attention*) because of the variety of data in which common concepts of the components were identified.
Recommendations for Future Research

Based on the limitations in data sources that informed components and subcategories of the ATAA model, recommendations for future were considered.

Related to the limitations in data supporting Component of 2, *Therapeutic relationship*, it is recommended that application of the ATAA model emphasizes clinical practices that establish trust and restricts the use of collaborative drawings between therapist and patient. Further research that explores the contribution of collaborative drawings in art therapy to the quality of the therapeutic relationship is needed before this technique is included in the clinical practice of the ATAA.

Related to the limitations in data supporting Component of 2, it is recommended that in the clinical application of Component of 4 as part of the ATAA model, in the exploration of acceptance of chronic pain in the art therapy process, the art therapist use clinical practices that facilitate children’s ability to create their own metaphors rather than introducing metaphors for acceptance to the patient. For example, the art therapist may ask questions of patients that suggest a metaphorical response. Because data suggested that pediatric patients spontaneously use metaphors to express emotions and to communicate with others, it is recommended that the art therapist attend closely to the metaphors that patients introduce, and to make use of the patient’s own metaphors as treatment progresses. For example, the patient may create a metaphor that can be developed over time—expanded or altered.

Related to the limitations in data supporting Component of 3, two recommendations for future research were made. Parents were included in a number of interventions using CAM therapies. However, most studies that included parents did not
examine their impact on outcome. It is suggested that future research examine the impact of parents’ participation on the outcome of interventions in the area of complementary therapies. Research on family art therapy and the impact of parents’ participation on children’s ability to manage pain is one possible application. Research involving the impact of parents’ participation in complementary therapies for children with chronic pain may inform the design of family art therapy research.

In response to limitations in data supporting Component 3, specifically the subcategory *Developmental factors*, it is recommended that future research be conducted in the area of art therapy. It is recommended that prior to performing clinical research on the ATAA model, that research be conducted in art therapy examining the ability of children in the concrete stage of cognitive development to use metaphor. Results of such research will inform the validity of the ATAA model and suggest modifications.

Future research may include designing an assessment– which may be a series of drawings that is consistent with the roles of the components and the core category of the AATA.
CHAPTER 6: SUMMARY AND CONCLUSIONS

The objective of the study was to develop an art psychotherapy treatment approach for pediatric chronic pain that incorporates acceptance. The objective was met by answering the research question: What are the components of an approach to art therapy, incorporating acceptance, which may be used as a complementary treatment for children ages 7-12, living with chronic pain? The major finding of the study was a theoretical approach called the Art Therapy Acceptance Approach (ATAA) that included five main components. The five components are: 1) Multiple factors in pediatric chronic pain, 2) Therapeutic relationship, 3) Developing capabilities, 4) Imagination and 5) Attention. The core category, a concept that was identified within each component, is called Discovering possibilities through acceptance. The core category suggests how acceptance may function within the ATAA. For example, the identification of the core category in Component 3 suggests how acceptance of limitations in verbal capacity or physical movement may be associated with finding options for communication including self-expression in the creative arts therapies.

The ATAA was a product of the grounded theory method of data analysis (Strauss & Corbin, 1998). The grounded theory method was chosen because it is stated to be a suitable method for examining a process for which there are few theories available (Creswell, 2007). The literature review suggested that there are no theories that describe the use of art therapy incorporating acceptance as a treatment approach for children with chronic pain. Data collection included qualitative and quantitative literary data. There were five pre-determined areas of data collection that served as initial codes in the data
coding process: Pain/Chronic pain, Pediatric chronic pain, Acceptance, Interventions for pediatric chronic pain, and Art therapy. Data analysis involved a three step data coding process that included 1) organization of the data, 2) reorganization of the data based on concepts recognized across five areas of data collection, and 3) the identification of a core category. Through the process of open, axial and selective coding using the grounded theory method of data analysis, the five main components of the ATAA were identified. The role of each component in the ATAA model was determined by considering its theoretical function and potential interactions with other components.

This study considered whether children in the concrete stage of cognitive development may be able to understand and benefit from acceptance if it is introduced through the language of art therapy—image, metaphor, and storytelling. Three components of the ATAA in particular, contained data related to children’s abilities to use images, metaphors, and stories to communicate. These three components were: 

Therapeutic relationship (Component 2), Developing capabilities (Component 3), and Imagination (Component 4). Data supporting Component 2 included art therapy studies which suggested that children are capable of exploring emotions through images and metaphors in a therapeutic relationship (Ball, 2002; Case & Dalley, 2006; Rubin, 2005; Silver, 1989; Tanaka, Kakuyama, & Urhausen, 2003; Wadeson, 2000). Data supporting Component 3, Developing capabilities, included limited evidence that children’s use of metaphors is an ability associated with the concrete stage of cognitive development (Beales et al., 1983; Gaffney & Dunne, 1986). Data supporting Component 4, Imagination, included studies and literature in the area of art therapy that described the ability of children with chronic pain (Palmer & Shepard, 2008; Savins, 2002) and other
types of pain or illness to use metaphor (Councill, 2003; Henley, 2007; Landgarten, 1981; Vasarhelyi, 1990; Wadeson, 2000; Winnicott, 1971) and storytelling (Gabel, 1984; Mallay, 2002; Russell, 1995; Sundaram, 1995) to explore their experience. The above data contributes to the plausibility that school-aged children with chronic pain may be able to use metaphors and stories to facilitate acceptance and thus, in turn, benefit from its positive effects.

Clinical recommendations were developed by considering the role of each component in practice. The recommendations included a multidisciplinary treatment setting which is consistent with a biopsychosocial model of pain. Clinical applications included suggestions for assessments and interventions. It was recommended that individual assessments address anxiety, depression, cognitive and emotional ability to use metaphor, attention, and patient-family dynamics. A family art therapy assessment was also recommended.

Limitations in data sources that informed the five components impact the validity of the ATAA model. These limitations were addressed through analysis of data informing the topical areas of acceptance and Acceptance and Commitment Therapy (ACT), art therapy, CAM therapies, and cognitive development and metaphor. A review of how the components of the ATAA may be impacted by limitations in data sources, and implications for use of the ATAA were discussed.

It was recommended that future research examine the impact of parents’ participation on clinical interventions for children with chronic pain, how school-aged children use metaphor in art therapy, and how family art therapy may contribute to
children’s ability to manage chronic pain and parents’ ability to care for a child with chronic pain.
REFERENCES


and quality of life in longstanding pediatric pain-A randomized controlled trial.

_Pain_, 141, 248-257.


_European Journal of Pain_, 11, 267-274.


APPENDIX A: OPEN CODES

Table A1

Pain/Chronic Pain

---

Open Coding

- lack of correspondence between experience of pain and tissue damage
- Distinction between perception of sensory input and sensory input itself;
- perception of sensation is cause of pain (rather than nociception)
- the brain can generate experience of pain in absence of other stimulation (from peripheral pain receptors or spinal cord)
- affective and cognitive factors are tied to experience of pain at the level of brain functioning
- biomedical model outlines simple relationship between experience of pain and tissue damage
- biopsychosocial model outlines multiple factors as source of chronic pain experience
- Influence on multiple aspects of functioning differentiates chronic pain from other types of pain
Experience of chronic pain involves multiple factors

Family learning is factor impacting chronic pain experience

Social, psychological factors impacting chronic pain experience

Distressing emotions and/or symptoms of anxiety or depressive disorder, part of chronic pain experience

Chronic pain condition affects daily functioning

Developmental level influences behavioral response to pain

Changeable factors impacting chronic pain experience: cognitive, behavioral, and emotional factors

Developmental level influences how pain is described

Emotional quality of chronic pain is independent of any objective measure of injury

Recommendation for multi-factor approach to treatment of pediatric chronic pain - pharmacological, physical and psychological therapies
Table A3

Acceptance

Open Coding

Acceptance in Mindfulness Meditation

Willingness to: let things be or to see things as they are

practice of mindfulness has positive effect on functioning

Acceptance and Commitment therapy

Non linear thinking as antidote to power of verbal thought content

independence between private inner events (thoughts and feelings) and behavior

using non linear thinking and experiential exercises to decrease power of verbal thought content

change created by unlinking inner events and behavior

Acceptance research in adults with chronic pain

acceptance can influence tx outcome through effect on cognitive style

A component of ACT intervention is associated with better functioning
Table A4

Treatment Interventions for pediatric chronic pain

Open Coding

Medical Treatments
lack of studies on use of pharmacological treatments for children
reluctance to use one type of pain relief (opiods)
disagreement within field about how to treat patients with difficult chronic pain
lack of information translating research to practice

Physical Therapy
combination of physical therapy and cognitive behavioral strategies
cognitive components that emphasizes problem solving and better functioning
enlisting patient in recovery process
some programs involve home practice

Complementary Treatments for pediatric chronic pain
combining two therapies in one intervention
relaxation combined with intervention technique (relaxation with biofeedback, creating mental image)
Increased detail and multi-sensory components in interventions (relaxation and guided imagery)
headache and recurrent abdominal pain are most discussed pediatric pain conditions (in area of complementary treatments)
effectiveness in relaxation interventions
attention to patients' conscious abilities in relaxation and biofeedback
Use of predictable process to alter pain experience
Table A4 (continued)

Music Therapy/Dance Movement Therapy

therapeutic interaction involved experiences of flexibility and structure

Facilitating conscious awareness of abilities

focus on ability to lessen focus on disability

therapist sending message of ability to communicate despite pain

ACT for Pediatric Chronic Pain, other applications of ACT

therapist competence and adherence to protocol are not discussed

ACT produces measurable positive affect on cognitive, emotional, and pain outcome measures

ACT influences beliefs, perception of ability, pain intensity

ACT produces improvements in pain intensity and pain interference

Complex concepts taught with experiential methods

creating conscious awareness of inner phenomena

Use of concretizing metaphor

Discriminating among privately experienced phenomena (thoughts, feelings, bodily sensations)

Metaphor as means of communication between therapist and child

Mindfulness for Ped Chron Pain

introduction of abstract concept

Mindfulness for Anxiety

children respond positively to concretizing exercise

children show interest in mindfulness-related activities
Table A5

**Art Therapy**

<table>
<thead>
<tr>
<th>Open Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>creating art as stimulus for verbal interaction</td>
</tr>
<tr>
<td>healing aspect without verbalization</td>
</tr>
<tr>
<td>healing benefits of creative process independent of aesthetic quality of product</td>
</tr>
<tr>
<td>quality of product linked to success of therapy</td>
</tr>
<tr>
<td>unconscious process in expressing repressed, unacceptable</td>
</tr>
<tr>
<td>Conscious process of creating art object, attaching pride to product</td>
</tr>
<tr>
<td>bringing together inner events (thoughts, feelings, etc) and responses to external world</td>
</tr>
</tbody>
</table>

**Art Therapy with Children**

| Group art therapy structure for communicating private experiences |
| Group art therapy improved ability to express thoughts and emotions |
| Therapeutic interactions with limit setting and freedom |
| Artwork allows expression of unconscious material |
| Metaphors provide reflective distance |
| Creative process reduces anxiety without verbalization |
| Creative process reduces anxiety w/out interpretation |
| Concretizing goal in art therapy process |
Table A5 (continued)

<table>
<thead>
<tr>
<th>Art Therapy</th>
<th>Open Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Art Therapy</td>
<td></td>
</tr>
</tbody>
</table>

- sense of agency in art therapy process
- control through conscious interactions
- decision making, use of cognitive abilities in art therapy process
- control experienced through improvement in emotional state during art therapy process
- support of patients' defenses facilitates reduction in anxiety
- support of patients' defenses facilitates feeling of accomplishment
- metaphor for expression after injury
- metaphors provide structure for exploring threatening emotions
- metaphor and clarifying emotions
- mastery experienced through attention to pain and concretization of it visually
Table A5 (continued)

Art Therapy

textures, colors and other qualities of art therapy materials provide visual language for expression of emotions

reduction in pain associated with action oriented art therapy process

non verbal expression provides as way to assess patient's abilities

art expression combined with verbal description may decrease stress symptoms

Medical Art Therapy for Children with Pain

art provided alternative means of communication

use of metaphor as means of communication between therapist and patient

difficulty in finding words for emotions

difficulty in finding new way to see problem

benefit of art therapy with child and parent

art provided alternative means of communication
## APPENDIX B: SAMPLE MATRIX

<table>
<thead>
<tr>
<th>Authors, Title, Journal</th>
<th>Year</th>
<th>Purpose</th>
<th>Methodology (N, age range)</th>
<th>Results</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold et al. Pediatric chronic pain and health-related quality of life, <em>Journal of Pediatric Nursing</em></td>
<td>2009</td>
<td>To examine the level of impact of chronic pain on HRQOL (Healthy related quality of life)</td>
<td>Experimental quantitative, Cross-sectional, correlational (N 69, ages 8 to 18)</td>
<td>O Children and adolescents with cp report lower HRQOL scores than population based normative means O findings validate clinical observations O Treatment that addresses both physical and emotional correlates of pain is needed O Adolescents were significantly more impaired in HRQOL areas than children O statistical evidence for impairment in many domains of HRQOL</td>
<td>This study enrolled participants seeking help for outpatient pain management, and their caregivers; data was collected using 3 formal measures. Limitations are cross-sectional, small sample size, data collection not supervised</td>
</tr>
<tr>
<td>McGrath, P.A. &amp; Hillier, L.M. (2002). A Practical cognitive-behavioral approach for treating children’s pain... In Turk, D.C. &amp; Gatchel, R. J. (Eds.) Psychological Approach to Pain Management (pp.534-552)</td>
<td>2002</td>
<td>To explain multiple factors that contribute to child’s experience of pain; to describe an integrated approach to treating childhood pain</td>
<td>Chapter in book</td>
<td>O Characterization of child's perception of pain, &quot;plastic;&quot; O factors that impact perception: developmental, social and psychological; O research on children w/ chronic pain conditions indicates that anxiety, depression, coping skills play a significant role in expression of their pain</td>
<td>A proposed therapeutic approach includes three main categories of factors: cognitive, behavioral and emotional, and includes modifying factors that contribute to a child's experience of pain such as age, cognitive level, previous pain experience, family learning. Case examples included.</td>
</tr>
<tr>
<td>Sallfors, C., Fasth, A., &amp; Hallberg, L.R.-M. (2002) Oscillating between hope and despair- a qualitative study. <em>Child: Care, Health &amp; Development</em></td>
<td>2002</td>
<td>To explore and describe the impact of chronic pain on the lives of children with juvenile chronic arthritis (JCA)</td>
<td>Qualitative, Comparative grounded theory (N 22, ages 6 to 17)</td>
<td>O The core category, &quot;oscillating between hope and despair&quot; was identified, O CP leads to restricted social life O Response of environment impacts experience of pain O Sadness was part of living with O Older children (plus 10 yrs) attributed more unpleasant meanings to pain sensations O Youngest children used metaphors to describe pain</td>
<td>Core category was related to other categories- children's subjective experience of pain and changes in their daily lives as a result of their condition (dependency on tx, uncertainty about future) were observed. Environmental context played a role in a child's experience of pain</td>
</tr>
</tbody>
</table>