

"CREATIVE DANCE": POTENTIALITY FOR ENHANCING
PSYCHOMOTOR, COGNITIVE, AND SOCIAL-AFFECTIVE FUNCTIONING
IN SENIORS AND YOUNG CHILDREN

by

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Abstract

The purpose of this study was to examine the potentiality of creative dance to enhance physical, cognitive, and social-affective functioning in seniors and young children in a rural setting. A total of 78 people participated, 24 institutionalized intermediate care adults (aged 56 to 103) and 54 children (aged 7 to 10). The groups included: a physical education class with 13 children, a children's creative dance class with 20 children, an intergenerational creative dance class with 15 seniors and 21 children, and an exercise class with nine seniors. The 30 minute dance / exercise / physical education interventions were held twice a week for 12 weeks. Methods of data collection included pre/post or pre/mid/post self-reports; pre/post cognitive tests and movement tests for all participants, weekly field notes and four video-taped recordings of creative dance lessons, and mid/post creative dance program evaluations by participants and staff.

Results indicated that creative dance and exercise increased physical skills related to walking gait and balance in adults; creative dance improved flexibility and smoothness of movement in shoulders, hands, arms, legs, and feet in adults. Creative dance and physical education classes improved motor skills in children. Creative dance and exercise did not improve cognitive skills in adults. Improvements in cognitive skills were found for all the children's groups although other factors may account for this finding. Creative dance and exercise classes increased positive emotions and decreased negative emotions in adults; adult dancers moved towards feeling "relaxed" after class in the first week. Mean depression scores were low ("mid-moderate" range) for both adult groups, but only the intergenerational dancers moved into the "normal range" during post-testing. The mean affective domain scores were high throughout the duration of the program for all three children's groups. Improvements in dance related physical skills correlated with improvement in cognitive skills in adult dancers; a deterioration in dance related physical skills

correlated with an increase in depression in New Denver adult exercisers. Physical skills did not correlate with the level of cognitive skills or affective skills in children.

Field observations indicated that creative dance enhanced social skills; namely, cooperation, communication, belonging in a group, leading, following, and being aware of others. Children in both creative dance groups reported similar positive emotions and self-concepts; children in the intergenerational class demonstrated increased attentiveness during instructions and increased gentle tolerant behaviour. Additional issues examined through field observations indicated that: (a) movement explorations helped participants learn more about moving their body parts and their spatial environment, (b) experiencing free flowing movements and pantomime encouraged the expression of feelings, increased nonverbal communication in most children, and increased memory for movement patterns and sequences in intergenerational class children, and (c) music enhanced self-expression and the selecting and combining components of creativity.

Dance program evaluations at the midpoint and end of the creative dance program by participants and staff indicated that the creative dance program was successful and appropriate for the participants. Children and adults reported happy, positive experiences; adults noted it was easier to relax and breathe deeply. Nursing staff confirmed some of the seniors' self-reports and noted there were limits in how much improvement was possible in 12 weeks. Both school teachers noted an increase in group cooperation but only the intergenerational class teacher noted a transference of positive physical, social, and emotional changes from the dance class to the regular school day. It is concluded that creative dance can enhance physical, social, and emotional growth in children and frail adults and that an intergenerational creative dance venue contributes positively to fostering the social skills of caring, tolerance, respect, and unconditional acceptance between generations.

Dedication

For Shaun, Shilo, and Tama Gempton
for believing, supporting, and loving
unconditionally.

- and for Erich "von" Rossberg -
whose spirit instilled the strength to complete the journey.

Thank-you.

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Chapter 1

INTRODUCTION / REVIEW OF THE LITERATURE

Sensory experience is a key to intellectual, social, emotional, and physical growth. Therefore, creative dance, which offers exposure to visual, verbal, tactile, and proprioceptive sensory experiences, could be a vehicle to promote this growth (Poll, 1979; Boucher, 1979). For the purposes of this research, creative dance is defined as the mastery of movement combined with the artistry of self-expression; it is a means with which to learn and explore elements or concepts of dance as well as enlarge self-expressive movement repertoires (Gilbert, 1992). In creative dance, "the interpretation of ideas, feelings, and sensory impressions" (Dimondstein, 1983, p.42) may involve responding to rhythm or music and can be expressed by free movements through individual interpretation or by dramatization in which movement is stimulated by a story, idea, or sounds (Humphrey, 1987).

Creative dance addresses several subcomponents in each of the psychomotor, cognitive, affective, and social domains. For instance, locomotor actions, nonlocomotor actions, and dynamics (time, energy, flow) as well as physical fitness elements such as strength, endurance, flexibility, balance, coordination, and speed of movement form subcomponents of the psychomotor domain. Knowledge of locomotor and nonlocomotor actions, body alignment, spatial awareness, the

creative process (of exploring, discovering, selecting, combining, and sequencing), evaluation, and memory are subcomponents of the cognitive domain in creative dance activities. Finally, cooperating, leading, following, and communicating form subcomponents of the social domain; attitudes (i.e. feeling happy and appreciating the abilities of self and others) form subcomponents of the affective domain in the dance program (Parker, Fenton, Holme, Ireland-Echols, & Phillips, 1988).

Although claims have been made by dance educators about the potential of dance to influence psychomotor, affective, social, and cognitive domains through self-expressive dance movement, only a few empirical studies have attempted to substantiate these claims (Berryman-Miller, 1988; Crain, Eisenhart, & McLaughlin, 1984; Gurley, Neuringer, & Masee, 1984; Munns, 1978, cited in Robertson & Halverson, 1982; Van Zandt & Lorenzen, 1985). Unfortunately, these studies were methodologically flawed due to the lack of: (a) baseline measures, (b) demographic information, (c) a control group, (d) random assignment, and/or (e) description of the type or duration of dance activities. Additionally, the studies tended to have a small number of self-selected subjects. These limitations generate problems with respect to interpreting or evaluating the results, documenting any changes in the participants after the dance program, determining the validity of the studies, and generalizing the results beyond the population of study.

Despite the lack of methodologically sound empirical studies, intuitively inspired statements made by dance instructors coupled with this author's personal experience

and systematic behavioral observations as a dance instructor and researcher (Rossberg-Gempton, 1994) about the potential of creative dance to influence positively cognition, affect, physical skills, and social skills would suggest it is worthwhile to pursue this issue further. Specifically, using both an empirical approach and systematic behavioural observations, this research explored whether participation in a creative dance program enhanced and/or increased motor skills, cognitive abilities, positive affect, and social skills in young children (ages 7 to 10 years old) and the elderly (seniors in an intermediate care facility aged 56 to 103 years old) in an intergenerational venue (whereby young children and old seniors danced together). It is to be noted that for the duration of the paper the terms seniors, elders, and adults will be used interchangeably to refer to the institutionalized frail elderly. Specifically, these frail elderly are:

that component of the population in whom the deficits threatening independent living in the community outweigh the assets allowing elderly people to be maintained in their own homes. This dynamic model of frailty recognizes an interaction between, on the one hand, assets such as health, positive health attitudes and practices, financial, environmental and other resources, and a social support network, and on the other, acute and chronic illness, disability known as dependence in Activities of Daily Living (ADL) and caregiver burden. The institutionalized frail elderly are those in whom the deficits threatening independence have outweighed the assets protecting it, resulting in entry into long-term care" (Rockwood, 1995, p 153)

1.1. Theoretical Contexts

1.1.1. Dance

Historically, dance has played several important roles in communities, including

nonverbal communication of passionate experiences for the dancer or for the audience, a method of establishing social unity, and/or a therapy offering a form of physical and emotional release and rehabilitation (Kraus, Hilsendager, & Dixon, 1991). Dance has been described as a pleasurable, healthy function that promotes a sense of exhilaration and joy; dance has also been defined as an expression of emotion whereby certain gestures and motions convey inner experiences of tension, relaxation, or specific moods (Anderson, 1974; Ellfeldt, 1976; Kraus et al., 1991).

Therapeutically, dance blends physical and emotional aspects into an integrated expression (Kraus et al., 1991). Dance therapists explored the idea of finding a link between gestures, movements, postures, and personality expression. It is believed that there is a continuum between body and mind, a connection between muscular sequences and attitude such that a change in muscular sequence can affect or change one's attitude (Siegel, 1984). This holistic philosophy encapsulated and laid down the foundations of dance therapy, which has been used occasionally by some psychotherapists to augment psychotherapy sessions by healing emotional disturbances through bodily movements and manipulation.

The idea of dance as a psychotherapeutic, healing tool is based on the premise that body movements express inner emotional states. According to Hanna (1988), dance therapy promotes healing through body movement and its theoretical approaches are derived from various sources such as dance experimentation, psychoanalysis, or behaviour modification. Some healing processes in guided group dance therapy

include promoting: (a) socialization through synchrony where people move together in time or make a spatial design with similar effort or parts of the body, (b) a sense of community and cohesion by dancing with others, and (c) an experience of vitality through the synergistic effect stimulated by movement and group interaction.

Although no empirical studies were found which statistically support this idea, several studies have found that postures can influence emotions (Duclos, Laird, Schneider, Sexter, Stern & Van Lighten, 1989; James, 1932; Riskind, 1984; Rossberg-Gempton, Dickinson, Kristiansen, & Allin, 1994; Rossberg-Gempton & Poole, 1993).

By providing persons with a cognitive awareness and control of their postural rigidities and emotions through movement, dance therapists believe that dance therapy has the potential to produce a sense of wholeness in mind and body (Rossberg-Gempton & Poole, 1992). However, by focusing on the therapeutic benefits of dance for troubled individuals or groups, its possible use as a preventative device for the promotion of positive physical and mental health (specifically, enhancing physical skills, cognition, affect, and social skills) has not been a primary area of examination until a recent field study by this author (Rossberg-Gempton, 1994). Results from this exploratory study suggest a creative dance program for young children could be considered a viable means of promoting physical and mental health. In the current study, empirical investigations (and systematic behavioural observations) in each of the physical, cognitive, affective, and social domains with adults and children explored this matter further.

1.1.2. Physical Domain

An extensive literature search revealed a sparsity of empirical and qualitative research studies with respect to changes in physical skills for either the elderly or young creative dance participants. Some dance literature regarding children tended to focus on teaching creative dance and naming the types of motor skills that could be explored (i.e. Boucher, 1979; Docherty, 1982; Mason-Luckey & Sandel, 1985; Weisbrod, 1972; Woodruff, 1985). Other dance literature discussed the potential benefits of dance therapy, focusing on the integration of mind and body rather than changes in physical abilities but did not provide empirical support for suggestions (i.e. Hanna, 1988, Irwin, 1972). A report on creative dance for older adults suggested that dance could increase mobility and coordination (Pruett, 1983) and a report on intergenerational dance suggested that various creative dance activities could improve spatial concepts, coordination, flexibility, and balance (Lindner & Harpaz, 1983), but neither report presented data to support its claims.

Although no empirical studies were found with respect to changes in physical motor skills as a result of participating in creative dance, four observational studies noted physical changes in children or adults who had participated in creative dance (Caplow-Lindner, Harpaz, & Samberg, 1979; Crain et al., 1984; Rossberg-Gempton, 1994; Van Zandt & Lorenzen, 1985). Increased balance, coordination, enhancement of fine motor skills (movements with wrists and fingers), and correct execution of leaps were the motor skill changes noted for young girls participating in a creative

dance class (Rossberg-Gempton, 1994). Improvements in the ability to move in rhythm, to perform dance sequences correctly, and to partner, namely, to "position oneself relative to another" (p. 135, Crain et al., 1984) were the motor skill changes noted for educable mentally retarded creative dance participants. The Van Zandt and Lorenzen (1985) study was very vague in reporting physical improvements, simply stating that elderly participants reported they could bend, walk, and climb stairs better. Comments from ability assessments in a study by Caplow-Lindner et al. (1979) revealed that the elderly participants showed "slight to marked improvements in the range of movement of the torso and upper limbs in almost all the clients" but that "lower limb mobility and space orientation did not seem to improve as dramatically" (p. 245). In addition to changes in motor skills, Caplow-Lindner et al. (1979) investigated changes in physical functioning such as changes in appetite, sleeping habits, bladder control, flexibility-mobility, coordination, muscle strength, and posture. They found that although trained staff members (a physician, social worker, and nurse) reported improvements in self-image and better concentration, no physical changes were noted.

However, physical activities such as sports have been recognized as being instrumental in the promotion of physical, mental, and social skills (Blair, Kohl, Paffenbarger, Clark, Cooper, & Gibbons, 1989; Nutbeam, Aaro, & Catford, 1989; Wold & Anderssen, 1992). Therefore, it would be reasonable to assume that creative dance, which is also a physical activity, could have similar effects but without the adverse side effects that may accompany intense participation in competitive sports

training such as having decreased vigour (Morgan, Brown, Raglin, O'Connor, & Ellickson, 1987), feeling upset when losing a competition (Orlick & Botterill, 1975), or developing tendencies towards unwanted social characteristics such as aggressive behaviour (Bredemeier, Weiss, Shields, & Cooper, 1986).

1.1.3. Cognitive Domain

It is thought dance movement activities can aid in the retention, recall, application, and use of cognitive concepts (Parker et al., 1988). However, literature searches revealed a lack of studies which empirically tested the possibility that creative dance could have an effect on cognition. Nonetheless, some studies reported an increase in cognitive function after participating in an exercise program. Examples of cognitive changes in adults included an increase in scores on the general information subscale of the Wechsler Adult Intelligence Scale Revised (WAIS-R) (Stamford, Hambacher, & Fallica, 1974), the Wechsler Memory Scale (Powell, 1974), and the Digit Symbol and Block Design subtests of the WAIS-R, the Trail-making test, and the Crossing-Off test (Young, 1979). However, no change was reported in the Raven's Progressive Matrices test (Barry, Steinmetz, Page, & Rodahl, 1966). Cognitive changes in children included an increase in scores on the Performance Subscales of the Wechsler Intelligence Scale for Children Revised (WISC-R), Frostig, and Bender-Gestalt tests (Fretz, Johnson, & Johnson, 1969) and the Stanford Academic Achievement test (Ismail, 1967). However, no changes were reported in scores on the Perception Form test (O'Connor, 1969, cited in Folkins &

Sime, 1981) or the Otis IQ (Ismail, 1967).

Unfortunately, many of these studies also had methodological problems. For example, self-selection in the Powell (1974) study and the screening and subsequent elimination of potential participants who had heart problems, arthritis, or hypertension in the Powell (1974) and the Stamford et al. (1974) studies threaten the external validity of each study. Small sample sizes also provide cause to question the findings of the Stamford et al. (1974), Barry et al. (1966), and Young (1979) studies because, statistically, the small sample sizes gave low power to detect between-group differences. The findings in the Fretz et al. (1969) study are difficult to verify because the selection procedures are not described, the control group activities are unknown and the specific type or intensities of the treatment group activities are not disclosed. No significant differences in IQ were found between the experimental physical education group and the control physical education group in the Ismail (1967) study; however, it is possible that the results may have been due to a similarity of physical education activities in the two groups (as the only difference in activities was a greater emphasis devoted to balance and coordination in the experimental physical education group). Finally, although standardized measures of psychological constructs are used in the Stamford et al. (1974) study, no theoretical or logical reasons are given to explain why certain subscales of the WAIS-R were selected as the cognitive measures. In view of the methodological problems and equivocal results, further research is necessary to determine whether creative dance (which appears to require the cognitive elements of memory, spatial reasoning, and

sequential patterning) could influence these aspects of cognition.

1.1.4. Affective Domain

Affect is a "general term used more-or-less interchangeably with various others such as *emotion*, *emotionality*, *feeling*, *mood*, etc." (Reber, 1985, p.15). Similarly, the term mood is intertwined with the terms *emotionality* and *affect* as the definition of mood is a "relatively short-lived, low intensity emotional state" (Reber, 1985, p.449) or "a state of mind or feeling" (Davies, 1976, p.458). These definitions imply that in contrast to personality traits "which suggest a predisposition to behave in a certain way regardless of the situation" (Leith, 1994), moods are transient states. In other words, a mood is a short-term phenomenon which fluctuates (Berger, Owen, & Man, 1993; Maroulakis & Zervas, 1993) and reflects how a person feels at a particular moment in time. Moods can be given positive (e.g. relaxed) or negative (e.g. anxious) classifications (Flory & Holmes, 1991). Although the types and duration of some mood states such as anxiety and depression vary and although anxiety can be thought of as a long-lived personality-trait, a short-lived state, or a stress emotion (Folkins & Sime, 1981; Morgan, 1985; Spielberger, Gorsuch, & Lushene, 1970), for the purposes of this dissertation anxiety and depression will be classified as negative mood states. Specifically, anxiety is a "vague unpleasant emotional state with qualities of apprehension, dread, distress and uneasiness" (Reber, 1985, p.43) and depression is "a mood state characterized by a sense of inadequacy, a feeling of despondency, a decrease in activity or reactivity, pessimism, sadness and related

symptoms" (Reber, 1985, p 188)

Creative dance teachers and creative dance therapists have long observed the effect of creative dance on affect. The dancer can feel joy in vigorous movements such as leaps (Barlin, 1979), can feel the exhilaration and joy of swinging, suspending, and bouncing (Garnet, 1982), can feel happy and gain a satisfactory self-concept through the healthy expression of emotions in dance (Humphrey, 1987; Rossberg-Gempton, 1994), and can gain a feeling of pride and self-worth through an increase of competency in self-expression and movement skills (Parker et al., 1988). Dance participants can learn to redirect their emotions through movement (Dimonstein, 1983), may release anxiety and experience emotional stability through dance movements (Caplow-Lindner et al., 1979), can feel relaxation and tension by dancing like a rag doll (Barlin & Barlin, 1971), and may discover that a shifting of tensions and relaxation can provoke specific attitudes (Siegel, 1984) and release physical tension and emotional stress through breathing exercises (Caplow-Lindner et al., 1979; Garnet, 1982).

Apart from two methodologically flawed social-affective studies (Crain et al., 1984; Gurley et al., 1984), literature searches did not produce any empirical studies that measured changes in mood following creative dance. However, the effects of exercise on mood states have been empirically examined by using the Profile of Mood States (POMS) to measure changes in tension-anxiety, depression-dejection, anger-hostility, vigour-activity, fatigue-inertia, and confusion-bewilderment (hereafter

named tension, depression, anger, vigour, fatigue, and confusion) For instance, comparing exercise groups to nonactive controls in a college population, it was found that there were significant mood changes following either "long term" (12-14 weeks) or "short term" (one time) exposure to different types of aerobic exercise. Some studies found a decrease in depression, anger, and confusion following aerobic exercise compared to controls (Berger & Owen, 1983; Berger et al., 1993; Dyer & Crouch, 1988; Dyer & Crouch, 1987; McGowan, Pierce, & Jordan, 1991). Other studies found decreases in depression and anger (Markoff, Ryan, & Young, 1982) or decreases in tension following aerobic exercise (Berger & Owen, 1983; Dyer & Crouch, 1987; McGowan et al., 1991; Roth, 1989), but only the "long term" programs showed increases in vigour following aerobic exercise (Berger & Owen, 1983; Berger et al., 1993; Dyer & Crouch, 1988). On the other hand, overtraining - defined as the process of physical training which "can lead to staleness" and produce fatigue such that "performance in competition usually falls below expected or customary levels" (p. 107, Morgan et al., 1987), had additional detrimental effects such as increased fatigue and decreased vigour (Morgan et al., 1987; Morgan, Costill, Flynn, Raglin, & O'Connor, 1988). Finally, no significant changes in mood states were found following anaerobic isotonic exercise for well-conditioned individuals (McGowan, Pierce, Eastman, Tripathi, Dewey & Olson, 1993).

Similar to college population studies, the POMS scores indicated there were changes in mood following exercise in non-college populations. Two studies using controls showed decreases in anxiety, anger, and confusion for exercisers compared to

controls (Maroulakis & Zervas, 1993; Simons & Birkimer, 1988); one of these studies also showed decreases in tension and depression and an increase in vigour for exercisers compared to controls (Maroulakis & Zervas, 1993). A study by Hughes, Casal, and Leon (1986) also showed significant differences in mood between controls and the exercise group. Unfortunately, this study suffered from methodological problems because the exercise intensity for the exercise group and the activity for the controls were unknown and the samples were small. A study by Frazier and Nagy (1989) did not use controls; however, all three exercise groups were low in tension, depression, anger, fatigue, and confusion and were high in vigour before and after exercise.

As mood states are considered transient, it was not expected that changes in mood would be long-term. Nonetheless, Simons and Birkimer (1988) found lasting effects on mood three months after an exercise program was over. However, the amount of activity during the three months was not monitored so it is unclear whether the POMS scores reflected a long-term mood effect or a short-term response following undocumented exercise. It is more likely that effects of mood are not long lasting as was shown by the 24 hour follow-up in the Maroulakis and Zervas (1993) study, in which all moods but anger had returned to pre-exercise levels. Nonetheless, despite the unknown length of mood changes, the results from the mood-exercise studies showed that a positive change in moods appears to occur following exercise.

Specifically targeting the effects of exercise on depression, several studies have

shown that participation in strenuous physical, aerobic activities such as swimming or jogging can be effective in reducing depression (Berger & Owen, 1983; McCann & Holmes, 1984; Roth & Holmes, 1987). Beck (1967, cited in North, McCullagh, & Tran, 1990) suggested that depression has three components: automatic negative thoughts, systematic logical errors, and depressogenic schemata. As positive thoughts and feelings are reported after exercise (Simons, McGowan, Epstein, Kupfer, & Robertson, 1985), it is proposed that these feelings can break the negative spiral or cyclical pattern of depression. Using Bandura's self-efficacy theory (1977a) as a model, it is believed that mastering a skill (i.e., aerobic/anaerobic exercise or dance elements) that is perceived as being difficult can create "increased self-confidence, self-efficacy, and the ability to cope with personal problems" (North et al., 1990, p.405). Feeling successful and experiencing internal locus of control through exercise can help increase the accessibility of positive thoughts and feelings and help stop the negative thinking/feeling patterns. Simons et al. (1985) believe self-efficacy looks promising as studies with follow-ups such as the Griest (1984, cited in Simons et al., 1985) study showed that exercise and relaxation groups were doing better than traditional psychotherapy groups which had regressed towards the baseline.

It is possible that experiencing mastery through exercise (or dance) brings self-control. Learning movement skills, using these skills independently to attain personal goals, and attributing the improved mood to the mastery of these movement skills may improve self-concept, enhance moods, and decrease symptoms of

depression, thereby making exercise a useful treatment for depression (Berger & Owen, 1983; Biddle & Fox, 1989; Falls, Baylor, & Dishman, 1980; MacMahon, 1990; Markoff et al., 1982; Martinsen, 1990; Ransford, 1982; Simons et al., 1985). In addition, it is possible that improving bodily functions through exercise may create a sense of accomplishment which could dispel the feeling of helplessness that often accompanies depression (Ledwidge, 1980). It is suggested that creative dance could be substituted for the more traditional aerobic exercise modalities and that dance participants would reap the same benefits reported for aerobic exercisers.

1.1.5. Social Domain

In dance therapy it is believed that one must understand and experience a feeling of self before reaching out to others and that the joy of self-awareness can be felt through participating in a "rhythmic [dance] activity *with* or *for* others" (Chaiklin, 1975, p.65). The rhythmic action of dancing with others can help an individual make contact with others, get support from the group, and become aware of himself/herself "as an entity functioning with others in comparative safety" (Chaiklin, 1975, p.77). It is also believed that a dysfunction in one area of the body can affect psycho-social development and that "movement activities which incorporate the components usually acquired in normal human development" (Bernstein, 1981, p.5) can help the individual evolve to his/her "age-appropriate level of functioning" (Bernstein, 1981, p.5). Building on these principles of dance therapy, it is assumed that exploring the body through creative dance classes can produce similar outcomes of joyous self-

awareness and positive social-affective behaviour in non-troubled participants

Furthermore, creative dance can enhance social development through imaginative play and cooperative activities such as following and leading (Gilbert, 1992; Nahme-Huang, Singer, Singer, & Wheaton, 1977), can promote a bond between dancers through sharing ideas, sharing physical space, and accepting individual differences (Gilbert, 1992) as well as help young children increase their communication skills, become more spontaneous and creative, increase their attention span (Freyberg, 1973) and increase leadership skills (Gilbert, 1992).

While it is important to remember that positive changes may occur simply as a result of socializing in the dance program, it is believed that the creative dance expression adds extra dimensions such as giving an individual "self-mastery through being in charge of the body" and that this self-mastery can contribute to "positive self-perception, body image, and esteem" (Hanna, 1988, p.19) which can then be extended to include an appreciation of others. Furthermore, the structure of the dance exercises and warm ups, the guided visioning (such as "move like the wind", "be a cloud") and the creativity of free style dance responses to music are all elements that distinguish dance from other group activities such as participating in hobbies or group play (Rossberg-Gempton, 1994).

1.2. The Impact of Positive Mental and Physical Health in the Promotion of Primary Prevention

One of the major purposes of primary prevention is to promote conditions which produce good health, resistance to disease, and non-troubled, law abiding behaviour (Pransky, 1991). As opposed to secondary prevention which intervenes during the early signs of problems to reduce crisis, stop disease, or change troubled behaviour or tertiary prevention which repairs, rehabilitates, or treats existing problems (Pransky, 1991), primary prevention is proactive in nature, encouraging health promotion and skills to forestall the development of maladjustment (Cowan, Hightower, Pedro-Carroll, & Work, 1990). Strategies for primary prevention include changing environments, promoting good physical health and awareness, promoting healthy self-perceptions (a sense of belonging, capability, and control), providing supports, and building good social, life skills such as self-control, good communication, responsibility, and moral/ethical reasoning.

Creative dance could be used as a prevention strategy by promoting good physical and mental functioning. For instance, isolation due to diminishing physical and/or cognitive capabilities is a problem for seniors which may be partially alleviated or prevented by continued physical movement, mental stimulation, and social contacts with a younger, more energetic generation in an intergenerational creative dance program (Mason-Luckey & Sandel, 1985). While acknowledging that it is beneficial

for seniors to maintain a sense of belonging, responsibility, and self-control, it is particularly important to provide nourishing environments for growing, developing children so they can acquire the aforementioned healthy self-perceptions and social/life skills which will enable them "to display socially acceptable, non-troubled behaviour" (Pransky, 1991, p.30).

Building for mental and physical health at an early age can help prevent costly and serious problems later in life (Cowan, et al., 1990). Prevention of problem behaviours and an enhancement of positive affect can be found through participation in leisure/recreational physical activities and the arts (Pransky, 1991; Rossberg-Gempton, 1994). Both venues provide alternative means of finding legitimate expressions of fun and promote good health practices which can be retained throughout the entire life span.

1.3. The Promotion of Physical and Mental Health Through Prevention Approaches in the Creative Arts Therapies

A preventative approach in the creative arts therapies is relatively new. For example, it was not until 1987 that music therapists and drama therapists were asked to consider "their potential role in community-based mental health prevention programs" (Wager, 1987, p.135). Recent exploratory field studies have shown that creative drama, "the guided enactment of dramatic characters and fantasies" which

allows participants to express thoughts and feelings symbolically (Walsh, Richardson, & Cardey, 1991, p. 61), can be used in health promotion to nurture social-emotional development and facilitate positive child or adolescent peer interaction skills (Walsh-Bowers, 1992; Walsh, Kosidoy, & Swanson, 1991). Participation in fantasy play can help children increase their sensitivity to others and become more spontaneous and creative (Freyberg, 1973). Music educators recognize the importance of movement as a tool for self-expression in a musical environment (Andress, 1991; Jalongo & Collins, 1985) and that music and movement play important roles for the development of active listening skills which are "fundamental to moving, singing, playing, and musical creativity" (Wolf, 1992, p. 57).

With the exception of the field exploration of Rossberg-Gempton (1994), most of the dance literature has concentrated on dance education in the schools or dance therapy as part of psychotherapeutic treatment rather than examining the possibility of using creative dance as a means of prevention and promotion of physical and mental health. However, the results of the aforementioned field study demonstrated that creative dance can promote positive affect and encourage positive peer interactions.

1.4. Creative Dance and the Physical, Cognitive, and Social-Affective Domains

Creative dance also offers elements that are unique to dance and/or apart from exercise/physical education classes. For instance, in creative dance, the process,

not the product is emphasized, allowing the students:

- a.) to define themselves in terms of their bodies, perceptions, and feelings (Huskey, 1979)
- b.) to think and move creatively, which requires the engagement of cognitive processes rather than imitation and leads to self-discovery (Rakusin, 1990),
- c.) to assimilate intuitive, visual/spatial knowledge through a non-linear kinaesthetic (movement) sense (Emerson & Leigh, 1979; Logan, 1984),
- d.) to become aware of "subtle changes in the use of energy, to respond to dynamic rhythms, to sense the emotional textures of movement, to be aware of space as a tangible entity" (p. 302, Logan, 1984), and/or
- e.) to simply move for fun with no specified goal (Hecox, Levine, & Scott, 1975).

Creative dance also offers movement as (a) expression - to freely explore movement spaces in the environment as an individual, (b) expansion - of self-discovery, becoming aware that one's body is different from others, (c) imagination - imagining and enacting what or who one can become, and (d) creation - experiencing surrounding stimuli and adjusting to the moods of others (Emerson & Leigh, 1979). In other words, dance offers the opportunity to explore and find meaning in movement dynamics (time, energy, and flow) and to develop the perception of one's own position in space as well as learning to relate and communicate to others through movement in a cooperative way (Laban, 1980). Furthermore, creative dance simultaneously "involves the individual socially, creatively, expressively, and

physically" (Hecox et al., 1975, p.12) while emphasizing student strengths. Creative dance is more versatile than physical education or exercise classes because dance can be a physical therapeutic tool, a social, emotional, and recreational expression, or an aesthetic art form (Hecox et al., 1975). An examination of specific physical, cognitive, and social-affective goals in creative dance and possible linkages between these goals follows

1.4.1 Physical Goals of the Creative Dance Lesson

Physical abilities and limitations differ for the elderly and children; however, the following physical goals of dance activities appear similar for all participants:

- a.) improving cardio-vascular condition (by increasing general endurance) (Garnet, 1982; Irwin, 1972; Skinner, 1993).
- b.) gaining physical skills and learning to move with control and efficiency (Humphrey, 1987).
- c.) maintaining or improving posture, joint mobility, coordination, and balance (Irwin, 1972; Pruett, 1983; Skinner, 1993; Weisbrod, 1972; Woodruff, 1985).
- d.) increasing muscular strength and endurance (Skinner, 1993; Weisbrod, 1972; Woodruff, 1985).
- e.) aiding digestion and reducing constipation (especially for the elderly) (Garnet, 1982; Skinner, 1993).
- f.) relieving anxiety, insomnia, and depression (especially for the elderly) (Skinner, 1993), and

g.) reducing muscular tensions through relaxation techniques (Skinner, 1993).

1.4.2. Cognitive Goals of the Creative Dance Lesson

In keeping with what is known about the impact of creative dance on the cognitive domain, cognitive goals of the creative dance lesson have been derived to include:

- a.) aiding "the dancer in understanding and controlling the body" (Woodruff, 1985, p.37) through gentle warm ups and relaxation which feature body alignment, strength development, and joint mobility exercises;
- b.) increasing the participants' vocabularies of action and developing an awareness of the connection between breath and rhythm when dancing (Weisbrod, 1972);
- c.) "knowledge about dance movement, or understanding why the body moves the way it does in certain dance activities" (Humphrey, 1987, p.15);
- d.) increased knowledge and understanding of creative dance such as dance elements (body space, dynamics, and relationships), body alignment, and the "capacity of movement as a vehicle for personal expression (Parker et al., 1988, p.4);
- e.) increased cognitive abilities such as problem-solving by exploring different personal and group dance tasks, interpreting/analyzing movement concepts (Humphrey, 1987) which include locomotor and nonlocomotor movements (Gilbert, 1992; Parker et al., 1988), developing memory and exercising "the

creative process which includes exploring, discovering, selecting, combining, sequencing, and evaluating" (Parker et al., 1988, p.4); and

f.) an ability to participate in process discussion whereby answering the questions of how they developed the dance and what they saw can encourage them to consider "the creative process of others and to create their own new forms" and can challenge "the students' thinking" regarding aesthetic values and physical strengths and weaknesses of the dance (Woodruff, 1985, p.39). The latter point illustrates the idea that participating in creative dance involves the cognitive abilities to attend, follow directions, and concentrate on performing and watching performance pieces.

One may criticize this list on the grounds that body alignment and demonstrating creativity through dance are kinaesthetic processes, and that one cannot "remember" movement explorations. However, in my opinion, thinking about body alignment and body movement during the creative process and trying to recall or recreate previously explored creative dance patterns require cognitive processes.

1.4.3. Linking Cognitive Aspects to Motor Learning in Creative Dance

A link between cognition and movement has been reported by Gallahue and Ozmun (1995) who propose that there are specific cognitive concept components in movement. These concepts include:

- 1.) skill concepts: how the body should move with respect to fundamental and

specialized movements;

2) movement concepts: how the body can move with respect to dynamic changes in effort, space (where the body moves), and relationships (with whom and with what the body can move);

3.) activity concepts: where the body should move (patterns, formations, rules, and strategies);

4) fitness concepts: knowing what to do to gain and maintain a healthy lifestyle with respect to exercise fitness, nutrition, and good health; and

5) academic concepts: using movement with its tactile and kinaesthetic modalities to reinforce concepts in language arts, math, science, and social studies which are traditionally taught through auditory-visual methods.

1.4.4. Social-Affective Goals of the Creative Dance Lesson

Social-affective goals of the creative dance lesson include:

a.) increasing or maintaining social skills such as cooperation, leading, following, and communicating and

b.) feeling happy and self-confident and appreciating the efforts of self and others in the dance program (Caplow-Lindner et al., 1979; Garnet, 1982; Rossberg-Gempton, 1994).

1.4.5 Linking Social-Affective Aspects to Motor Learning in Creative Dance

Although it would seem that creative dance would be an ideal medium to enhance and/or develop social skills and positive attitudes, only a few empirical studies regarding the effects of modern, advanced, or creative dance were found (Berryman-Miller, 1988; Gurley et al., 1984; Poretz, 1974, cited in Gurley et al., 1984; Van Zandt & Lorenzen, 1985). As previously stated (page 3), these studies were methodologically flawed. However, two exploratory field studies have shown positive qualitative results; namely, that the dance participants: (a) showed an increase in participation, cooperation, and taking leadership, and (b) expressed a positive mood through smiles, laughter, and verbal reports (Crain et al., 1984; Rossberg-Gempton, 1994). Additional positive social changes occurred in the Rossberg-Gempton (1994) study, whereby children became more accepting of each other and helped one another in learning motor skills.

1.5. Considering the Viability of Creative Dance as an Intervention to Promote Physical and Psychological (Affective, Social, and Cognitive) Wellness

It would appear that creative dance, which could be considered a recreational as well as an artistic endeavour, could be instrumental in promoting good mental and physical health. Particularly, it would seem that creative dance lessons which use elements of creative drama and music, would promote similar positive social-

affective changes to creative drama and music programs. Some areas of change could include developing positive peer interaction skills, increasing or enhancing self-expression through movement, and helping to develop attentive listening skills which are necessary for tasks such as listening to and following directions, hearing and responding to changes in the music, and listening to critiques of the dance performance pieces. Practising these social skills would enhance social-affective growth, particularly communication and cooperation. As physical activity can provide a venue for social interaction as well as help keep muscles strong and joints flexible (McTeer & Curtis, 1990), it is worth promoting creative dance for its dual contributions to physical and social skills enhancement. Participating in a creative dance class could also be considered a prevention strategy for both adults and children because it provides participants with skills and competencies that relate positively to adjustment and physical and psychological (affective, social, and cognitive) wellness. Furthermore, participation in an intergenerational creative dance program may provide additional opportunities for unique social skills development. For instance, the elderly can encourage and provide positive reinforcement (i.e. praise) for the children's efforts (Mason-Luckey & Sandel, 1985) and offer them nonjudgmental acceptance (Lindner & Harpaz, 1983) and the children can reciprocate by demonstrating caring and respect for the elderly, thereby increasing social skills as well as establishing a strong social bond between the generations. Thus, it appears that creative dance may be a viable instrument for the enhancement of positive attitudes and social skills through the various physical creative dance activities and that this issue warrants further investigation.

Chapter 2

A PROTOTYPICAL CREATIVE DANCE LESSON

The following chapter is presented to give the reader a sense of creative dance as a vehicle for physical and psychological (affective, social, and cognitive) wellness. The description integrates the reasoning behind the design elements of a creative dance lesson, particularly for intergenerational classes (such as physical and cognitive limitations of the elderly) with the relatively sparse literature that has been published on this topic. Due to this lack of literature and the lack of established methods of intervention for an intergenerational creative dance program, most of the elements of the dance lessons in this study had to be distilled from creative dance material for children (e.g. Gilbert, 1992; Parker et al., 1988), creative dance for adults (e.g. Caplow-Lindner et al., 1979) and exercise for the elderly (Garnet, 1982). The information from these sources had to be carefully weighed with particular limitations and abilities of the subject groups in mind.

It is difficult to isolate the psychomotor (i.e. mobility, flexibility, and balance), cognitive, and social-affective elements found within a creative dance experience as these domains often interact. For instance, although it is possible to observe psychomotor skills without considering the cognitive and affective domains, the person executing the psychomotor activities will none-the-less be activating cognition

and affect in the process of movement. Typically, ideas for creative dance include a combination of skills which necessitate an integration of cognitive, affective, and psychomotor skills. When working with a partner or in groups, social skills are also an asset. Therefore, when students are experiencing creative dance, the cognitive, affective, social, and psychomotor domains seem to be intertwined. The complexity of creative dance elements and their interactions with the psychomotor, cognitive, and social-affective domains are illustrated in Table 1.

Table 1
COMPONENTS OF CREATIVE DANCE LESSONS FOR CHILDREN AND THE FRAIL ELDERLY

I WARM UP EXERCISES

Nonlocomotor Activities

<u>Psychomotor</u>	<u>Cognition</u>	<u>Social/Affective</u>	<u>Children</u>	<u>Frail Elderly</u>
(body movements) -twist, turn -bend -stretch -swing -stop	-attend (listen, observe) -listen to directions -follow directions -awareness of the body in space & of body alignment	-socialize (working in a group) -feel exhilarated (especially with swinging)	-all levels (i.e. stand, lie, sit)	-sitting
(body parts) -touch your lower leg, thigh, knee cap, wrist, head, chin, etc.	-awareness of body parts -attend -listen to directions -follows directions	-socialize (working in a group)	-all levels (i.e. stand, lie, sit)	-sitting

Locomotor Activities

<u>Psychomotor</u>	<u>Cognition</u>	<u>Social/Affective</u>	<u>Children</u>	<u>Frail Elderly</u>
-walk -run, skip -jump, hop -gallop, leap	-listen to directions -space (pathway, directions, personal and general space)	-socialize (working in a group) -feel competency, pride -feel exhilarated, happy	-toes, heels -own explorations	-watching

II CREATIVE DANCE EXPLORATIONS AND MIME

<u>Psychomotor</u>	<u>Cognition</u>	<u>Social/Affective</u>	<u>Children</u>	<u>Frail Elderly</u>
-explore body dynamics (weight, time, flow, space, rhythm) and formations	-dynamic awareness (rhythmic, temporal spatial) -knowledge of dance elements, creativity	-social activity -feel exhilarated	-all levels	-sitting
-clap, shake, bounce -explore emotions -imagery (i.e. smooth as velvet, fly like an eagle)	-rhythm, attend -use imagination -use imagination	-socialize, feel happy -feel the emotions -happy, playful	-all levels -all levels -all levels	-sitting -sitting -sitting
-explore action words (i.e. rise, sink, vibrate) -explore relationships (alone, pairs, groups, with objects) in a dance or mime (sample activities: move/freeze, mirror, theme, dramatization, interpretive dance, scarf/hoop dance)	-increase language -attend, concentrate -use imagination -follow directions -creativity -memory -attend, concentrate -evaluation	-socialize -feel competent -cooperation lead, follow, share, respect for others -communication (listen, observe, perform, speak) -appreciate self and others, feel competent	-all levels -all levels	-sitting -sitting

III RELAXATION AND COOL DOWN EXERCISES

<u>Psychomotor</u>	<u>Cognition</u>	<u>Social/Affective</u>	<u>Children</u>	<u>Frail Elderly</u>
breathing exercises	-experience duration (short, long)	-feel relaxed	-sitting	-sitting
Relaxation by -swinging -tightening/releasing -using imagery/breath	-attend, listen -awareness and reduction of muscular tension -use imagination	-group harmony -inner peace	-sitting	-sitting

(Sources: Amheim & Sinclair, 1979; Barlin, 1979; Barlin & Barlin, 1971; Boorman, 1973; Caplow-Lindner et al., 1979; Gallahue, 1976; Garnet, 1982; Gilbert, 1992; Harison, Layton, & Morns, 1989; Humphrey, 1987; Jensen, 1983; Murdock, 1987; Parker et al., 1988; Rossberg-Gempton, 1994.)

Although variations occur, the introductory activities of a creative dance lesson for children or the elderly generally include gross motor warm-ups, slow stretches, a review of the previous lesson, and an introduction to the new stimulus. The dance activities during the middle part of the lesson include the specific skill development of any motor skill(s) being learned or under review as well as a movement exploration of body dynamics, emotions, action words, and relationships (objects, partners, or group work). The end of the lesson includes cool-down/relaxation exercises.

As the adult participants of the proposed creative dance program would be frail elderly, a prototypical creative dance lesson for an intergenerational creative dance program which addressed the needs of this population had to be devised. For ease of understanding and to facilitate investigating the effects of creative dance on physical, cognitive, affective, and social skills, each domain is discussed within each section of the prototypical intergenerational creative dance lesson. A detailed overview of the nature of the creative dance lessons, how the portions of each lesson are believed to possibly connect to physical, cognitive, affective, and social skills, and consideration of limitations and/or adaptations for intergenerational class members were examined and are discussed.

2.1. The Creative Dance Lesson. Part 1: Warm-ups

A gross body warm-up can be accomplished by performing locomotor activities, nonlocomotor activities, and/or moving specific body parts. Locomotor activities

included walking, running, skipping, jumping, hopping, galloping, leaping, and sliding. Nonlocomotor activities included bending, stretching, twisting, turning, swinging, curling, gesturing, and stopping.

2.1.2. Physical Limitations and Adaptations of Locomotor Movements

There is great variability with respect to attaining mastery of some of the locomotor activities; therefore, some of these warm-ups needed to be adapted depending on the participants' movement abilities and limitations. As mature walking appears between the ages of 4 to 7 years old (Grieve & Gaer, 1966; Gutteridge, 1939; Williams, 1983), it is reasonable to expect that most 7-10 year old children and seniors can walk reasonably well.

However, it is important for the creative dance instructor to realize that as individuals move into older adulthood, they may experience changes in posture due to weakened muscles from decreased activity. For example, the elderly may have sagging upper backs which makes them stand with their feet apart and their hips thrust back for better balance. The backward rotation of the pelvis reduces pelvic support for the organs and puts pressure on the abdominal muscles which begin to stretch and weaken from the constant weight and pressure of viscera forces. As the abdominal muscles weaken, the organs sag and the lower back which needs the support of strong abdominals also weakens. This change in posture shapes all the other movements (Garnet, 1982).

In addition to postural changes, the elderly may experience a decrease in walking speed and changes in the walking gait patterns. Common gait changes may include a decrease in stride length, an increase in the double support period (when both feet contact the ground at the same time), a reduction in toe-floor clearance, and a change of strategies with respect to the feet clearing obstacles on the floor (Eible, Hughes, & Higgins, 1992; Ferrandez, Pailhous, & Durup, 1990; Tinetti, 1986). Numerous factors, including aging, orthopaedic conditions such as arthritis or bunions, and/or "disorders of the central nervous system such as Parkinson's disease, multiple sclerosis, tumours, or strokes can affect balance control" (p.481, Gallahue & Ozmun, 1995) and contribute to gait changes. It is beyond the scope of this paper to examine these factors or their underlying mechanisms.

Nonetheless, the dance instructor needs to be aware of postural, balance, and gait changes as well as possible risk factors associated with increased falls in some elderly citizens. Risk factors associated with falls include: (a) dementia, (b) depression, (c) arthritis or stroke, (d) medication, (e) a decrease in muscular strength, joint flexibility, visual and auditory abilities, and proprioception, (f) a slowing of reaction time, (g) showing a postural drop in blood pressure, and (i) having an abnormal balance or gait (Gallahue & Ozmun, 1995; Tinetti, Williams, & Mayewski, 1986). Anxiety and the fear of falling can inhibit breathing (as the breath may be held during the focused concentration of careful walking) and can increase muscular tension. If the elderly experience difficulties in walking, it is very likely they will find it arduous to participate in other locomotor activities such as running, skipping,

hopping, galloping, sliding, and/or leaping which require more speed, skill, balance, and regaining of stability than walking. As observations have indicated that the elderly can exercise safely while sitting in chairs (Caplow-Lindner, Harpaz, & Samberg, 1979; Garnet, 1982), it was concluded that exercises with locomotor patterns (such as stepping the right foot to the side and tapping the left toe and stepping the left foot to the side and tapping the right foot) are attempted from a seated position.

Young children generally do not have physical limitations or problems with respect to balance and falls. Certain locomotor activities such as skipping, hopping, galloping, sliding and/or leaping may, nonetheless, be very challenging. For example, the skills of galloping and skipping are generally not mastered until children reach the age of 6 or 7 years old (Cratty, 1979; Gutteridge, 1939). On the basis of the literature and my prior dance experience, it was concluded that the exploratory nature of creative dance activities can stimulate, motivate, and train children to master these locomotor skills in a non-competitive manner.

2.1.3. Physical Limitations and Adaptations of Nonlocomotor Movements

Most young children and seniors can participate in nonlocomotor activities; namely, move specific body parts through isolation, gesture, or shaping (curling, twisting, stretching) exercises. However, children have the ability to explore these activities from standing, sitting, kneeling, or lying down positions, whereas the elderly may be

restricted to exploring nonlocomotor activities from a seated position.

2.1.4. Cognitive Limitations and Adaptations of Locomotor and Nonlocomotor Movements

Despite the physical limitations of some participants, following directions in locomotor activities can enhance listening skills and the ability to follow directions (Rossberg-Gempton, 1994). Thus, whether attempting the locomotor actions from a standing position or the modified locomotor patterns from a seated position, both the children and elderly may benefit from participating in locomotor activities.

As previously discussed, nonlocomotor activities through isolation, gesture, or shaping may be appropriate for both age groups. For instance, some nonlocomotor exercises explore what the body parts can do (i.e. bend the trunk, shake the head). These types of nonlocomotor activities are beneficial for participants because of their potential to teach the names, position, and movement ranges of various body parts and to increase the participants' movement repertoire (Davis, 1980; Docherty, 1982).

2.1.5. Social-Affective Limitations and Adaptations of Locomotor and Nonlocomotor Movements

Observations have shown that children participating in warm-up exercises can improve and enhance nonlocomotor and locomotor skills, which, in turn, can lead to

feelings of self-worth, competence, and happiness due to the increased level of skill mastery (Rossberg-Gempton, 1994). Similarly, observations of elderly persons who attempt locomotor and nonlocomotor movements from a seated position indicate that they experience a sense of pride and joy from regaining movement skills (Caplow-Lindner et al., 1979; Garnet, 1982). On the basis of these observations, it was concluded that nonlocomotor and adapted locomotor activities in an intergenerational class would stimulate a positive attitude through the experience and mastery of new motor skills as well through the rekindling of old ones. In addition, these experiences may stimulate adults and children to appreciate and encourage each others' accomplishments and successes.

2.2. The Creative Dance Lesson. Part II: Specific Movement Skill

Combinations

Specific movement skills emphasized during the middle of the dance lesson depend on the objectives and goals of the lesson. Movement skills are varied and can include exploring space (levels, directions, pathways), dynamics (time, energy, flow), relationships (mirroring, contrasting, shadowing, supporting, connecting), and formations (scattered, circle, squares, lines, group shapes).

2.2.1. Physical Limitations and Adaptations of Specific Movement Skill

Combinations

Although physical adaptations may need to be made depending on the physical limitations of the participant, both the seniors and young children can experience benefits from these creative dance explorations. For example, by exploring weight (light/strong), flow (free/bound), time (quick/sustained), and space (direct/indirect), both seniors and children gain exposure to the various movement qualities and aesthetics of dance.

The physical activities of the creative dance explorations offer an opportunity to develop and/or maintain the components of physical fitness which are necessary for effective functional motor movement. For instance, by moving in a variety of ways, strength and flexibility are increased; an increase of muscular strength coupled with good posture (the proper segmental alignment of body parts) helps enhance body balance and coordination. An increase of movement may increase digestive motility, the metabolic rate, and the regularity of elimination (Garnet, 1982) as well as increase proprioceptor stimulation and the innervation of nerve pathways (Arnheim & Sinclair, 1979). Finally, cardiovascular efficiency may improve and the resulting increase of oxygen delivery to the body's tissues may make the participants feel more energized and alert.

2.2.2. Cognitive Limitations and Adaptations for Movement Skill

Combinations

There may be developmental limitations for some movement/cognitive concepts. For example, according to a study by Long and Looft (1972), most children have an awareness of front/back and up/down and are able to imitate someone else's movements by the age of six and can discriminate between right and left body parts by the age of seven; however, they cannot correctly identify left and right on a person facing him or her until the age of ten. This places a limitation on their understanding of movement concepts with respect to correctly mimicking the actions of the leader in the group. On the other hand, other than changes in balance and walking gait (which can restrict some of the other locomotor skills such as running, skipping, galloping, etc.), the literature search revealed no studies which explored changes with respect to the understanding of weight, time, flow, space, laterality, and directionality in the elderly as demonstrated by movement explorations.

Creative dance explorations can facilitate and expand the knowledge of movement qualities, space, dynamics, and formations, and enhance or reinforce the understanding of laterality (left and right sides of the body) and directionality (travelling backwards, forwards, left, right, up, and down) through self-discovery. Primary grade school children generally develop and refine fundamental movements through exploration, discovery, rhythms, games, and the application of effort, space, and relationship concepts (Gallahue & Ozmun, 1995). Similar modes of experiences

have been effective in reactivating physical and mental competence and rejuvenation among the elderly (Caplow-Lindner et al., 1979). Unlike some other movement venues, creative dance can be used in a therapeutic way as it emphasizes experimentation and discovery learning through individual explorations of effort, space, and relationships. Thus, creative dance would be an excellent medium for the skill, movement, and activity concepts in cognitive and motor learning development in an intergenerational venue as it has the flexibility to respond to individual movement capacities.

~~2.2.3 Social-Affective Limitations and Adaptations for Movement Skill~~

Combinations

Adaptations are unnecessary as prior observations found no social-affective limitations during creative dance movement classes (e.g. Mason-Luckey & Sandel, 1985). As dance therapy has been shown to increase nonverbal skills, cooperativeness, and positive feedback in preschool children (Nahme-Huang et al., 1977) and as creative dance has some elements that are similar to dance therapy (which has promoted social-emotional development), it is possible that creative dance can facilitate similar outcomes. Specifically, this section of the creative dance lesson should increase nonverbal skills, cooperativeness, and positive social interactions through partner and group work. For instance, mirroring (one person reflecting the movements of his/her partner), shadowing (following someone else's movements), and leading a group or following a leader requires an ability and

willingness to initiate or follow movements with a partner or group, thereby instilling cooperation. Furthermore, intergenerational studies have shown that miming and creative dance explorations have been an effective and successful way to stimulate positive intergenerational interactions and attitudes (Lindner & Harpaz, 1983; Mason-Luckey & Sandel, 1985; Metal-Corbin, 1983). For example, planning a group activity (such as a mime or dance) encourages group decision making and a growth of various communication abilities including being able to listen to directions and to other group members, to speak, to observe, and to demonstrate/perform ideas through nonverbal actions. Thus, learning to take turns in performing and watching, practising and performing the work, carefully observing the performance pieces, and constructively discussing the work afterwards should teach students to share ideas in a non-competitive manner, thereby stimulating positive feedback and cooperation.

2.3. The Creative Dance Lesson. Part III: Relaxation/Cool Down

Relaxation exercises, using breathing or progressive relaxation techniques or visualization/imagery techniques, and slow stretches are included at the end of the creative dance lesson.

2.3.1. Physical Aspect

The relaxation/cool down lessons and slow stretches are effective ways for all the

participants to cool down their bodies, release muscular tension, and instill a feeling of rejuvenation and vigour (Arnheim & Sinclair, 1979; Garnet, 1982; Lindner et al., 1979; Murdock, 1987; Shallcross & Sisk, 1982). Young and old alike can learn the relaxation techniques and slow stretches thereby relieving any discomfort or fatigue associated with tension. Finally, unblocking tension through relaxation may also increase the range, resiliency, stamina, and fluidity of movement (Rackoff, 1988).

2.3.2. Cognitive Aspects

Relaxation techniques can be learned and retained so that participants can recall and practise these techniques any time they become aware of physical or muscular stress. In other words, by becoming aware of physical stress and by remembering and rehearsing the relaxation techniques, participants could form a cognitive connection with the affective component of movement/relaxation techniques.

2.3.3. Social-Affective Aspects

Case studies have shown that after learning how to relax the body, people generally report feeling less anxious and less depressed, and tend to show "improvement in the gastrointestinal, cardiovascular, and organic symptoms" that can be associated with tension (Jacobson, 1967, p.163). Both seniors and children are able to participate in relaxation exercises through breathing and/or visualization exercises (Garnet, 1982; Murdock, 1987); therefore, positive attitudes and alleviated symptoms

of tension should be attained by both the seniors and children.

2.4. Summary

With a sensitive understanding of limitations, and an encouragement of capabilities, the instructor of an intergenerational creative dance class can guide the participants through a wide variety of safe creative dance movement explorations. In addition to the aforementioned physical, cognitive, and social-affective benefits, participation in intergenerational dance sessions gives the elderly an opportunity to experience patterns of movement and personal rhythm which they can share with the children who are still in the process of discovering their uniqueness (Lindner & Harpaz, 1983).

Observations from field work have indicated that creative dance activities may be instrumental in influencing the physical, cognitive, and affective domains of young and old dance participants. Creative dance is defined to include dance activities performed while sitting in a chair. Nonetheless, participation in creative dance classes may improve the physical condition of the elderly which is evidenced by muscular relaxation, musculoskeletal efficiency, increased joint mobility, digestive motility, the regularity of elimination, and the enhancement of the circulatory, respiratory, and nervous systems (Garnet, 1982). Positive experiences such as the stimulation of emotions from movement and the activation of deeper breathing may counteract depression by transforming it to exhilaration or joy. Creative dance may also provide mental and sensory stimulation, increase certain cognitive functions

(e.g. memory), encourage sociability, create positive group interactions, and build meaningful relationships, thereby decreasing feelings of isolation and/or boredom (Arnheim & Sinclair, 1979; Garnet, 1982). Through planning movement activities, children can learn to be purposeful and self-directing, make physical, cognitive, and/or affective changes based on movement experiences, and increase their mastery of movement skills, thereby increasing body awareness and feelings of pleasure and self-worth (Arnheim & Sinclair, 1979; Gallahue, 1976). Additionally, imaginative play through movement and dance can enhance cooperation, communication skills, and positive affect (Nahme-Huang et al., 1977).

2.5. Intergenerational and Children's Creative Dance Program: Recommended Duration

In addition to considering the components, limitations, and adaptations of a creative dance lesson, the duration of an intergenerational and children's creative dance program must be considered carefully. As previous exercise studies have shown, positive changes in mood and/or decreases in tension occur in 12 weeks (Berger & Owen, 1983; Berger et al., 1993; Dyer & Crouch, 1987; Dyer & Crouch, 1988; Maroulakis & Zervas, 1993; McCann & Holmes, 1984; McGowan et al., 1991; Roth, 1989; Roth & Homes, 1987; Simons & Birkimer, 1988). Cognitive changes in children, such as an increase in Performance Subscales of the WISC-R, occurred after an 8-week games/sports/exercise intervention (Fretz et al., 1969); cognitive

changes in adults, such as increases in Digit Symbol and Block Design subscales of the WAIS-R, occurred after a 10-week exercise and calisthenics program (Young, 1979). Increases in motor skills, movement explorations, and positive social interactions occurred in participants at the twelfth week of a 15-week creative dance program (Rossberg-Gempton, 1994). Therefore, a 12-week creative dance program should be sufficient time to gain movement expertise and to bring about social, affective, cognitive, and physical changes in the participants.

Chapter 3

METHOD

3.1. Research Questions

The components of the creative dance lesson raised the following empirically examined questions:

- 1.) Does creative dance enhance motor skills?
- 2.) Does creative dance increase cognitive abilities?
- 3.) Does creative dance increase positive affect?
- 4.) Does creative dance increase social skills?
- 5.) Will an intergenerational creative dance class have a positive effect on affect and/or social skills?

Based on issues raised by the literature, prior research, and field observations, it was hypothesized that, regardless of the age of the participant and similar to exercise, creative dance would:

- 1.) enhance motor skills,
- 2.) increase cognitive abilities, and
- 3.) increase positive affect.

Regarding the children in the creative dance programs, it was hypothesized that:

- 4.) an intergenerational creative dance class would have a greater positive effect on children's affect than a creative dance class without the elderly participants.

Further hypotheses included:

- 5.) that creative dance would increase social skills,
- 6.) that an intergenerational creative dance class would have a greater positive effect on children's social skills than a creative dance class without the elderly participant, and
- 7.) that there would be a positive relationship between physical and cognitive skills, between physical skills and affect, and between physical and social skills.

Through field observations, several related issues were explored. These issues included:

- 1.) whether creative dance exposure would increase dance knowledge, specifically, that the dance participants would learn more about (a) moving body parts, (b) locomotor skills, (c) body alignment, and (d) their spatial environment at the end of the dance program compared to the beginning of the dance program;
- 2.) whether following free flowing movements and pantomime components of the creative dance lesson with the dance teacher would: (a) encourage the expression of feelings through movement, (b) increase nonverbal

communication, and (c) increase memory for movement sequences or patterns; and

3.) whether listening and responding to music would enhance self-expression and creativity.

Finally, in order to evaluate the program regarding the participants' perceptions of the creative dance program and to help determine ways to improve the program for these participants, program evaluation forms were given to the child and adult dancers and to the teachers and nursing staff.

3.2. Subjects

The study took place in the Arrow Lakes Region of British Columbia as this was my home community and had evolved from the community interest and desire in becoming involved in a research project which would be of benefit to both the children and the frail elderly. Community members and community organizations not only gave their permission, they were keen to participate and offered time, space, and commitment to enable this idea to be implemented into a practical enterprise.

A total of 78 subjects participated in the study, 24 seniors aged 56 to 103 and 54 children aged seven to ten. Elders in both of the two intermediate care facilities in this region participated. Initially, there were 19 seniors between the ages of 61 and 103 in Nakusp Halcyon Home. Four of these 19 seniors participated in pre-testing

but refused to come to the dance classes so they were dropped from the study, leaving a total of 12 female and three male dance participants. Of these 15 participants, there were five participants who either refused or were unable to complete all of the pre-testing but were able to complete most or all mid-testing and all of the post-testing. The ages of the Nakusp adult participants ranged from 61 to 103 years old, with a mean age of 85 years, 4 months. Of the 12 seniors from the ages of 56 to 94 in New Denver Pavilion who participated in the pre-testing, one senior died, one senior became too ill to continue, and one senior was moved to another community, leaving a total of six females and three males in the exercise group who participated in mid-testing and post-testing. The ages of the New Denver participants ranged from 56 to 90 years old, with a mean age of 82 years 1 month. Initially, there were 23 children in the Nakusp intergenerational dance group, 21 children in the Nakusp dance without adults group, and 14 children in the Burton exercise group. However, two children left school in the Nakusp intergenerational group leaving a total of 21 children (12 females and nine males) in this group, ranging in age from 8 years zero months to 8 years 11 months old with a mean age of 8 years 6 months old. Three children did not complete all the tests, leaving 19 children (nine females and ten males) in the Nakusp children's only dance group, and 13 children (six females and seven males) in the Burton exercise group whose test scores were empirically examined. In the Nakusp children's only dance group, the ages ranged from 7 years 1 month to 8 years 11 months with a mean age of 8 years 2 months old. In the Burton exercise group, the ages ranged from 8 years 1 month to 10 years 2 months old with a mean age of 9 years 2 months old. Scores

from adults and children who were unable or refused to complete all the pre-tests are not included in some of the empirical test results; however, the changes that occurred for these participants are descriptively discussed.

Most of the seniors and many children were long time residents of the Arrow Lakes region. The children's groups were composed of normal class distribution (e.g. special needs, bright, and average children within the same classrooms) and were relatively homogeneous with respect to having similar distributions of socioeconomic groups and ethnic characteristics typical in the interior of British Columbia. The educational level of the seniors remains undocumented as many seniors were unable to remember their full educational background. Cultural backgrounds, economic status, and religious affiliations are unknown. Physical mobility in the seniors included walking independently (40% Nakusp, 56% New Denver), walking with walking aides such as walkers, crutches, or canes (47% Nakusp, 22% New Denver), or being in a wheelchair (13% Nakusp, 22% New Denver). Intermediate care level classifications indicated that none of Nakusp seniors and 56% of New Denver seniors were in level 1 classification, 20% of Nakusp seniors and 22% of New Denver seniors were in level 2 classification, and 67% of Nakusp seniors and 11% of New Denver seniors were in level 3 classification. Finally, 13% of the Nakusp participants and 11% of the New Denver participants were in extended care.

Further details regarding the medical condition of the seniors are not provided due to the following considerations:

- 1.) the possibility of violating the ethics code of research with respect to confidentiality as the number of participants in these rural communities was small and there was a possibility of identifying participants through the reporting of medical conditions;
- 2.) there is a need to recognize the vulnerability of people in institutionalized settings and for the study to refrain from becoming exploitative with respect to getting information for the sake of research;
- 3.) there was a need to respect boundaries of psychological ethics and qualitative ethics for community-based research in which this study was embedded, namely, being a community-based project and the researcher being a part of the community and given that the research project was profoundly linked to the everyday reality of human and social complexities, in this context, it was not significant for the researcher to know who had particular medical conditions. (However, safety issues for participants had been addressed with respect to doctors' permission and nurses' reports on general health conditions.)
- 4.) And, finally, the intent and focus in this project was on the potentiality of people rather than the limitations and labelling of people by infirmities.

3.3. Setting

Due to the low density population in rural B.C., this research project took place in several settings: Halcyon Home and the Glenbank Elementary School gym in

Nakusp, the Burton Elementary School classroom in Burton, and the Pavilion in New Denver. However, one of the motivations for doing this study was to look at creative dance as an adjunct to programs enhancing mental health for seniors in rural areas. The study is relevant to small communities as there are limited options and resources for programs in rural communities compared to the opportunities available in metropolitan areas.

3.4. Design

The study was a mixed factorial design. The experimental groups experienced a controlled intervention; namely, a creative dance program, whereas the control groups experienced normal patterns of exercise. Specifically, there were four groups:

- 1.) a comparison group of children, in a "wait list" condition, who experienced creative dance at the end of the 12-week program and while waiting for their creative dance lessons participated in physical education (P.E.) activities such as stretching, skipping, balancing on each other, and participating in cooperative physical games which work toward a common goal (e.g. joining hands with each other and unscrambling themselves without letting go of their hands to form one large circle);

- 2.) a comparison group of seniors who participated in an exercise program which included gentle movements emphasizing joint mobility and chair exercises (but permitted seniors who were not physically challenged to perform the exercises while standing);

- 3.) a group of children who participated in a creative dance program; and
- 4.) a group of children and senior citizens who participated in an intergenerational creative dance program.

Comparisons of cognitive, physical, and social-affective changes were made among the four groups. However, due to the different dynamics of each group (e.g. the different types of individuals and the ways in which they interacted with each other and with me) which made between-group comparisons difficult to make, this study may best be conceptualized as five separate studies. These five studies included the three children's groups: the Burton children's physical education class, the Nakusp children's only dance class, the Nakusp children dancing with seniors class, and the two adult groups: the New Denver seniors' exercise class and the Nakusp seniors dancing with children class. Comparisons of cognitive, physical, and social-affective changes were also made within each group.

Correlational analyses were used to determine whether there was a positive relationship between the physical, cognitive, and social-affective domains. Field observations were used to explore whether there were changes in the creative process.

3.5. Tools of Measurement

To examine the aforementioned questions and hypotheses, several observational

methods and quantitative measures were used.

1.) To record changes in motor skills, specifically in balance, flexibility, and coordination, parts of the Tinetti Observation Scale (Tinetti et al., 1986) and the Caplow-Lindner Scale (Caplow-Lindner et al., 1979) were used for the adults (see Appendix 1) and the Bruininks-Oseretsky Test, BO Test (Bruininks, 1978) was used for the children. It is to be noted that, as the seniors were in an intermediate care facility due to cognitive and/or physical declines, most standardized physical tests for adults were inappropriate. Although no standardized tests were found for persons in this extreme age bracket with physical and/or mental declines, the functional Tinetti and Caplow-Lindner Scales were considered useful tools to measure changes in basic physical skills because they had been used to assess movement in elderly seniors in clinical settings (the Vancouver General Hospital Short Term Assessment and Treatment program, personal communication, Jenny Elliot, 1995) and by dance therapists (Caplow-Lindner et al., 1979).

Simple observations of daily movements confirmed that these tests were also practical tools because they measured and/or accounted for people having obvious observable limitations in movement such as:

- a.) using walking aides (walkers, crutches, canes, or wheelchairs),
- b.) using portable oxygen units,
- c.) displaying difficulty with large motor movements (standing up and/or sitting down), and/or

d.) displaying difficulty with small motor movements (e.g. shrugging the shoulders or turning the head from side to side).

With respect to tests for children, although some physical skills could be tested in children by using the standardized BO test, an additional standardized test was not found which could measure changes in the acquisition of creative dance skills, such as exploring locomotor and nonlocomotor skills and moving the body through space in various directions, levels, and/or weight changes. Nonetheless, these latter changes were descriptively reported based on video-taped observations of the dance groups and are discussed in the observational discussion section of this dissertation.

2.) Changes in cognitive abilities were measured by the WAIS-R or WISC-R performance scales (Wechsler, 1981; Psychological Corporation).

3.) Creative dance knowledge of locomotor and nonlocomotor movement, body alignment and spatial awareness, and the creative process, which explores, selects, combines, and sequences movement, were recorded on video tape and analyzed by using observation rating scales. (See Appendix 2). Journal notes contributed some insight to the findings by adding observations on the weeks in which no video-recordings were made.

4.) Changes in affect were recorded by using the Beck Depression Inventory (by Beck & Steer, 1987; Psychological Corporation), an emotions scale using the

words "sad", "fearful", "angry", "happy", "interested", and "agreeable" each on a scale of 0 ("do not feel at all") to 24 ("feel very strongly"), and a semantic differential scale using the words "good/bad", "pleasant/unpleasant", "relaxed/tense" scaled from 1 to 5 (Rossberg-Gempton & Poole, 1993 - see Appendix 2a) with the adults. The Cratty Self-Concept Scale (see Appendix 3) and the "happy/sad" faces scale (see Appendix 4) was administered to the children.

Initially, the POMS scale (by McNair, Lorr, & Droppleman, 1971) was chosen to detect transient mood changes after dance or exercise classes as this test was designed to take a maximum of 10 minutes to administer. However, this test would not be valid to measure transient mood states for this population of adults.

Specifically, pre-testing revealed that most adults in this study could not self-administer tests due to poor eyesight, motor difficulties, poor memory, the inability to read, and/or diminished faculties. Furthermore, administering the POMS test orally took 45 minutes for one participant rather than the expected 10 minute group administration time when using pencils and paper to complete the test. At 45 minutes per person, this procedure took too long to adequately measure transient mood changes directly before and after exercise as the mood had changed by the time the last question was reached. On the other hand, emotion scales and semantic differential scales had been used to document mood changes following postural changes (Duclos et al, 1989; Rossberg-Gempton & Poole, 1993; Rossberg-Gempton et al., 1994) and took a few moments to administer. Therefore, in order to measure mood changes directly following the dance or exercise classes for the

adults participating in this study, the emotions and semantic differential scales were considered adequate tools and were substituted for the POMS scale.

5.) Social skills were recorded by video-tape and coded (See Appendix 5). Signs of cooperation with other dancers and with the teacher, leading, following, communicating (follows directions, responds to music, watches other dancers), showing a sense of belonging (participates with the group or dance partner), and displaying an appreciation of the abilities of the self and others were noted.

6.) Adapted versions of the "Questionnaire for Participants in Dance/Movement Sessions" and "Staff evaluation of Participant Response to Movement Sessions" (Caplow-Lindner et al., 1979) were used to assess the perceptions of participants and staff regarding the creative dance program and to help determine ways of improving this program (see Appendix 6 and Appendix 7).

3.6. Creative Dance Program

On the basis of the studies reviewed in the prototypical dance lesson section, the duration of the creative dance program was established as 12 weeks. The creative dance classes were held twice per week and the two groups alternated between having their classes in the afternoons and in the mornings. (See chart below).

Creative Dance Program Timetable

	Children's only group	Intergenerational group
Day 1	afternoon	morning (children alone) (adults alone)
Day 2	morning	afternoon (children and adults together)

Due to budget restrictions, the intergenerational class met once per week and also had classes by themselves (children alone or adults alone) once per week. The children in the creative dance class who danced without adults for the duration of the program met for half an hour twice per week. Similarly, the children in the physical education class met for half an hour twice per week and the adults in the exercise class performed exercises for half an hour twice per week.

A friendly, informative, and open atmosphere was maintained as it was known that these features create a positive learning environment in which to stimulate creativity and self-expression through creative dance (Gilbert, 1992) and stimulates positive social interactions amongst the dancers. In order to create and maintain a beneficial social climate in the dance program, features recommended by Mason-Luckey and Sandel (1985) were also included in this study; namely:

- a.) having a safe caring environment with activities that would captivate and encourage spontaneous group interactions,
- b.) promoting simplicity and some repetition in the types of movement activities.

- c.) having lively rhythmical music,
- d.) having small group sizes,
- e.) having a well-trained, enthusiastic teacher, and
- f.) accepting all group members.

While fulfilling the role of dance instructor in this research project, I used successful teaching skills I had learned through the process of many years of teaching and performing prior to my post-secondary education. (I have been a professional dance teacher for approximately 20 years and a professional dance performer for approximately eight years prior to my university education. My dance/theatre training includes creative dance, jazz, Russian classical ballet, Royal Academy of Dance (Ballet), Afro-Cuban, Spanish Flamenco, contemporary dance, character dance, body therapy, yoga, drama training in high school, and clowning workshops.) In particular, I used teaching strategies advocated by Spence (1983) such as modelling, role playing, praising, cuing, and coaching.

The three groups of school children and the two groups of adults experienced similar environments because they were led by well-trained, enthusiastic instructors (two certified teachers, one professional recreation/activity leader, and one professional dance teacher). All groups experienced safe, caring environments that encouraged positive group interactions and had classes in similar types of physical locations. In all groups, care was taken to ensure that the content of the classes was appropriate to the participants' capabilities.

As it is recommended that young children need to explore movements with the whole body (Laban, 1980), whole body involvement in creative dance explorations was encouraged in this study. For safety reasons (i.e. to avoid falls), the adults performed the movements from a chair. Precision and activities involving the repetition of long dance sequences were avoided as there is a danger of losing spontaneity and gaining self-consciousness by a teacher's overcorrections or by expectations of having to remember specific movements. I provided positive attention equally to all participants, opportunities were provided to improve social skills, and participants were encouraged to be active, involved learners.

3.7. Dance Classes

All the dance students learned basic locomotor and nonlocomotor skills, were encouraged to explore dance creatively (following me, dancing in pairs, or dancing in groups), experienced pantomime, and learned relaxation techniques (i.e. deep breathing and visualizations). In order to reduce the risk of falling while still promoting participation, locomotor patterns were modified for the elderly to enable them to participate from a seated position. The elderly who were unable to execute the locomotor patterns with their legs or feet were encouraged to move their arms or hands and/or watch the children perform the locomotor activities. Overall, props, music, and visualization techniques were integrated into the dance program in order to maintain interest, encourage social interactions, generate fun, stimulate movement, and/or promote relaxation.

Each 30-minute class was divided into three general sections:

- a.) 10 minutes of warm ups (with me guiding the dancers to move various body parts from a seated or stationary, standing position).
- b.) 15 minutes of creative dance explorations (less structured "freestyle" movement explorations of various dance concepts), and
- c.) 5 minutes of relaxation/cool down exercises (various relaxation techniques).

In addition to using the successful components from my own teaching practices in the past 20 years and from my prior research (Rossberg-Gempton, 1994), much of the creative dance class content was drawn from various sources including: Arnheim and Sinclair (1979), Barlin (1979), Barlin and Barlin (1971), Berryman-Miller (1988), Caplow-Lindner et al. (1979), Docherty (1982), Gallahue (1976), Garnet (1982), Gilbert (1992), Harrison et al. (1989), Humphrey (1987), Lindner and Harpaz (1983), Murdock (1987), and Parker et al. (1988). The dance format and philosophy were based predominantly on the creative dance practices advocated by Gilbert (1992) and Laban (1980) and ideas offered in the Creative Dance Basic Skill Series by the Dance Committee of the Canadian Association for Health, Physical Education, Recreation, and Dance (Parker et al., 1988).

3.8. Teaching Methods / Process

As students' behaviour may be influenced by teaching style as well as content,

specific teaching methods which had been successful during my past 20 years as a dance instructor were included; namely, demonstration, free improvisation, guided improvisation, and composition. The process of teaching included several strategies. To encourage safety, such as preventing dancers from bumping into each other, the idea of dancing in a bubble was introduced. To accommodate various learning styles, verbal instructions as well as physical demonstrations of skills (modelling) were given. To increase success and motivation in student learning, I paced the class in response to student abilities, responded to their needs, encouraged participants to tolerate differences, and challenged their capabilities by testing their limits. To maintain a positive and productive teaching/learning environment, student strengths were emphasized, positive behaviour was rewarded with praise, and disruptive/negative behaviour was met with a few moments of "time out" (with the student dancing or watching at the periphery of the dance group). To capture students' attention, I said "lights, camera, action", stood next to children who were not paying attention, called out "freeze" (whereby all student posed as if they were statues), asked children to dance very quietly, or sit very still until everyone in the room was quiet before I clearly and simply repeated specific instructions two to three times. Finally, to maintain attention and interest, it was sometimes necessary to shift the focus of the activity. For instance, if students were unruly or looking as if they were losing interest, I would ask the pianist to change the pace of the music or stop the activity and ask one of the students to lead the class.

3.9. Dance Content

Throughout the 12-week program, the following dance concepts were included:

- 1.) dynamics: time (sudden-sustained; speed: fast, slow; rhythm) and energy (weight: heavy-light),
- 2.) space (levels: high, middle, low; size: big/small, near-reach, far-reach; directions: side, up/down, right/left, forward/backward; pathways: straight, curved, zigzag),
- 3.) relationships (partners, groups) through the exploration of space and dynamics such as near/far, rise/sink, freeze/melt, scatter/gather, and push/pull,
- 4.) locomotor movements (walk, hop, jump, skip, slide, spin, gallop, star jump), and
- 5.) nonlocomotor actions (shake, poke, bend, twist, swing, tap, clap, punch, dab, slash).

In order to stimulate and encourage social interaction, partner and group work explored: (a) creative dance concepts, (b) mime ideas, (c) the use of various props, and (d) simple structured dances. To encourage relaxation, several exercises incorporated deep breathing exercises, progressive muscle relaxation techniques, visualization (imagery) exercises, props, and/or music. For instance, on week 1, tightening and releasing parts of the body was introduced. On weeks 2, 3, 4, 10, and 12, deep breathing was emphasized, whereas on weeks 5, 6, 8, 9, and 11, imagery

was emphasized. On week 7, deep breathing and imagery were equally emphasized. (See Appendix 8 for dance lessons.)

3.10. Procedure

Participants (and/or parents/caregivers) were informed of the nature of the research and were given consent forms to sign (see Appendix 9, Appendix 10, and Appendix 11). Children were told of the nature of the research verbally (see Appendix 12). Due to the physical challenges* faced by many of the seniors, consent forms also had to be signed by their family physicians before the seniors could participate in the creative dance lessons (see Appendix 13). Participants were pre-tested and post-tested with the physical, cognitive, and affective-social measures (see data collection below). During the first, sixth, and twelfth weeks, they were given the emotions scale and "happy/sad" faces scale before and after dance class (or after the physical exercise program), then the dancers participated in the dance program and the exercisers participated in the exercise program. Dance program evaluation (by staff, teachers, and dance participants) took place in the sixth week and after the program was completed.

3.11. Data Collection

Pre-testing and post-testing included the testing of physical skills (the Tinetti and

Caplow-Lindner Scale for the adults and the Bruininks-Oseretsky Test of Motor Proficiency for the children), cognition (the performance scales of the WAIS-R for adults and the WISC-R for children), and social-affective skills (the BDI for adults and the Cratty Self-Concept Scale for children). The last two measures were also measured during the sixth week. The physical and cognitive tests were administered and scored by the principal investigator. To check for reliability, scoring was done by a second scorer.

Additional data were collected during weeks 1, 4, 8, and 12 from the video-tapes. Observations of the dance groups included: locomotor and nonlocomotor changes, knowledge of dance skills (i.e. spatial awareness and memory for movement combinations) and social skills (i.e. cooperating, following, leading, and communicating), and the creative process. (See Table 2)

Category	Type of Movement	Pretest	Weeks			Posttest
			1	4	8	
Physical	Locomotor		x	x	x	x
	Nonlocomotor		x	x	x	x
Cognitive	Alignment		x	x	x	x
	Spatial Awareness		x	x	x	x
	Memory		x	x	x	x
Social Skills	Cooperation		x	x	x	x
	Following		x	x	x	x
	Leading		x	x	x	x
	Communicating		x	x	x	x
	Appreciating Self		x	x	x	x
	Appreciating Others		x	x	x	x
Creative Process (Journal entnes based on tape)			x	x	x	x

During weeks 1, 6, and 12, the emotions scale and the "happy/sad" faces scale were given at the beginning and end of each class for all groups. During week 6 and the post-test, the adapted versions of the "Questionnaire for Participants in Dance/Movement Sessions" and "Staff evaluation of Participant Response to Movement Sessions" were recorded for the dance participants. After post-testing, participants were informed when to expect feedback. (See Table 3)

Table 3

Times of Testing

Category	Test	Group	Pretest	Weeks												Posttest	Admin Duration*
				1	2	3	4	5	6	7	8	9	10	11	12		
Physical	Tinnetti/Caplow	Adults (ND)	x												x	30min	
		Adults (N)	x												x	30min	
	Bruininks-Oseretsky	Children (B)	x												x	20min	
Children (N)		x												x	20min		
Children (Nd)		x												x	20min		
Cognitive	WAIS-R	Adults (ND)	x												x	60min	
		Adults (N)	x												x	60min	
	WISC-R	Children (B)	x												x*	30min	
Children (N)		x												x	30min		
Children (Nd)		x												x	30min		
Affective	BDI	Adults (ND)	x					6							x	30min	
		Adults (N)	x					6							x	30min	
	Self-Concept	Children (B)	x					6							x	5min	
Children (N)		x					6							x	5min		
Children (Nd)		x					6							x	5min		
Affective	Affective Scale	Adults (ND)		1				6					12			2min	
		Adults (N)		1				6					12			2min	
	"Happy/Sad" Faces Scale	Children (B)		1				6					12			2min	
Children (N)			1				6					12			2min		
Children (Nd)			1				6					12			2min		
Social	Questionnaire	Adults (ND/Staff)							7						x	9min	
		Adults (N/Staff)							7						x	9min	
	Questionnaire	Children (B/T)							7						x	9min	
Children (N/T)								7						x	9min		
Children (Nd/T)								7						x	9min		

[Data Analysis: Mixed]

Within: Repeated Measures ANOVA for each Group in each Physical, Cognitive, and Affective Category

Between: ANOVA or t-tests comparing the Adults (dance and exercise groups) in each Physical, Cognitive, and Affective Category

ANOVA comparing the Children (dance alone, dance with adults, and physical education) in each Physical, Cognitive, and Affective Category]

ND = New Denver exercisers

N = Nakusp intergenerational class

B = Burton physical education class

Nd = Nakusp children

T = teacher

Admin Duration* refers to administration duration per participant

3.12. Test Administration, Coding, and Scoring

The pre and post WISC-R tests, the Cratty Self-Concept Scale, and program evaluation forms were administered by the principal investigator. The principal investigator trained the classroom teachers and two parent volunteers to aid in the administration of the BO test. Program evaluation forms were given to each of the teachers to fill out midway through the program and at the end of the program. The "happy/sad" faces scale was administered by the principal investigator in Nakusp and by the Burton school teacher in Burton.

The pre and post WAIS-R tests, the Tinnetti-Caplow Physical Tests, and the BDI were administered by the principal investigator in individual rooms in Halcyon Home for Nakusp participants and in individual rooms in the Pavilion for New Denver participants. The emotions scale was administered before and after dance or exercise class in the dining/activity room in Halcyon Home by the principal investigator and one volunteer and in the exercise/activity room in the Pavilion by the New Denver activity leader and one volunteer. Program evaluation forms for the participants were administered in the lounge at Halcyon Home by the principal investigator. Due to changing shifts, program evaluation forms for the staff were done by three different staff members. Nurse 1 commented on the condition of the adults in the dance program and on the effects of the dance on the adult participants midway through the program. Nurse 2 commented on the effects of the dance on the adult participants at the end of the program. Nurse 3 commented on the overall

effect of the dance program from the beginning to the end of the program as she was the person who had observed the adults most often throughout the 12-week dance sessions.

One volunteer video-recorded the dance classes during weeks 1, 4, 8, and 12 at Halcyon Home and at the Glenbank School gym. Several months after the end of the dance program, two coders, the principal investigator and a teacher volunteer, independently coded the social and creative changes observed on the video tapes. The tapes were colour coded by the volunteer videographer so the coders would not know which week of classes they were observing and coding. The principal investigator coded the video-tapes in their entirety. The teacher volunteer randomly selected the order of tapes to code and the coding method, such that two tapes were coded by method (a) and two tapes were coded by method (b). In method (a), the teacher volunteer coded the first three minutes of the lesson, omitted the next two minutes, then alternated between coding two minutes and omitting three minutes of the video-taped activities; in method (b), the teacher volunteer coded the first three minutes, omitted the next two minutes, then alternated between omitting three minutes and coding two minutes of the video-taped activities. Scoring of the paper and pencil tests was done by the principal investigator and was checked by a volunteer scorer. Coding took place in two private homes, one in Vernon and one in Burton. Inter-rater reliability for all coding and scoring was calculated (Huck, Cormier, & Bounds, 1974).

3.13. Analysis of Data

Both observational and quantitative analyses were used. The quantitative data were analyzed using a mixed design ANOVA with repeated measures on the various tests and independent measures for between groups. The tests included the Tinetti Scale, the Bruininks-Oseretsky Test of Motor Proficiency, the overall performance scale of the WAIS-R and the WISC-R, the BDI, and the Cratty Self-Concept Scale.

As this research project was also conceptualized as having five small studies within it; namely, the Burton children's physical education group, the Nakusp children's only creative dance group, the Nakusp children's intergenerational creative dance class, the Nakusp adult's intergenerational creative dance group, and the New Denver adult's exercise group, a repeated measures ANOVA was used to analyze the results from the cognitive, physical, and affective tests for each of the groups. An independent analysis of repeated measures for each group was warranted by the circumstances and unique dynamics of each group which were due to controlled variables (such as having no adults in some groups and no children in one group) and to uncontrolled variables (such as each group having unique group member interactions).

Group comparisons were made between:

- a.) children who were dancing and children who were not dancing
- b.) adults who were dancing and adults who were not dancing

c.) children dancing with adults and children dancing without adults.

Due to recording difficulties (i.e. not being able to see all participants at the same time or not being able to clearly distinguish individual participants), the proposed repeated measures ANOVA could not be used to analyze some social skills changes based on observations from video-taped recordings (see Appendix 5). One correlational analysis could not be done (between physical skills and social skills) for the same reason. Instead, observations of social skills changes were reported. Correlational analyses were done to help determine whether there was a positive relationship between: (a) physical skills and cognition and (b) physical skills and affect.

Inter-rater reliability was assessed for the scoring and coding of the aforementioned measures. To check for reliability, scoring of the tests was done by a second coder; similarly, coding of the video-tapes was done by a second coder. In each case, the second coder scored or coded 30% of the total material (tests or video-tapes).

When there were disagreements, the test items were examined by both scorers and the reasons for disagreement were discussed. A similar procedure was used for the video-tape; namely, that the video-tape was viewed again by both coders and the reasons for disagreement were discussed.

Observational analysis documented whether there were changes in the creative process based on video-taped observations. Although the data were primarily

observational, standard procedures for qualitative analysis were followed. For example, the data were content analyzed through "the process of identifying, coding, and categorizing the primary patterns of the data" (Patton, 1990, p.381). These observations were cross-checked and validated by comparing these findings with the field notes. According to Posavac and Carey (1992), the measurement procedure of using the behaviour expected to be changed by the program "contributes to an evaluation of high credibility" (p.79). Furthermore, as this research project used a multi-method, triangulation approach (namely, using more than one method of observation - video observations and field notes - and using different evaluators - the participants and staff members of the participating dance groups) to study and evaluate the 12-week dance program, it allowed for cross-data validity checks and "increases both the validity and the reliability of evaluation data" (Patton, 1990, p.245).

3.14. Ethical Considerations: Estimates of Benefits and Concerns

Some of the anticipated benefits of the study were as follows:

a.) The participatory nature of the research would give the participants an opportunity to voice how they experienced dance. This facilitated an awareness of how children, seniors, teachers, nursing staff (for seniors), and the participant-observer perceived the dance experiences of the dancers as well as giving participants an opportunity to shape and control their experiences.

b.) The results of the input allowed the participant-observer to change the

class to accommodate to its needs.

c.) By watching for signs of relaxation and tension and by observing the reactions of participants throughout the class, the participant-observer could change the nature of the class to accommodate the participants' abilities and ensure the dance experience would continue to be a positive, enriching one for all participants.

d.) Participating in the creative dance classes would increase positive affective states and enhance social, cooperative skills for the participants while they were having fun with their peers.

It was felt that a number of concerns might emerge. These concerns were as follows:

a.) Identification of individual students by community members at large. In order to preserve anonymity and not disclose personal information, a summary of the results was not given to the superintendent of schools, parents, or seniors until the end of the study. Specific information that identified individuals was not reported.

b.) As the participants were either very young or very old (and in a dependent situation), they might have felt that they had to answer questions when they might not have wished to do so. The interviewer/examiner assured them that they did not have to answer questions if they did not wish to.

c.) Staff or teachers may not have felt comfortable answering the questions and were assured that the information would be kept confidential at all times.

d.) A possible risk was leaving the community with no one to follow up on the dance program. However, the dance program will continue in some form by the

physical education teachers within the school and by the teacher who had participated in the intergenerational program at the senior centre.

3.15. Informed Consent

Prior to the study, parents and seniors were asked to consent to their participation and to the use of this information for professional publications and/or presentations of a professional nature. Children were asked to consent to their participation. As stated previously in the procedure section of this paper (section 3.10), consent forms were signed by the Nakusp senior dancers' family physicians before they could participate in the creative dance lessons.

3.16. Procedures to Ensure Confidentiality

- a.) Observations and results of individual interviews/testing were confidential. The identity of the interviewees and persons observed is known only to the participant-observer/interviewer and was noted numerically.
- b.) Contents of the observations and testing are kept by the principal researcher in a secure place. Notes have not nor will be photocopied.
- c.) The participant-observer/interviewer-tester had not provided or discussed any information that may possibly identify the respondents or participants of the dance class.

3.17. Nature of Feedback to Participants

In order to fulfil the previously agreed upon obligations and with anonymity assured, a summary of the results were hand-delivered by me to the superintendent of the school district and to the seniors and parents (c/o the participating schools and nursing homes) of the participating seniors and children. This summary of results did not refer to individual or group scores but did document relative improvement. The children participating in the study were thanked and all the participants were given a certificate of completion of the program.

3.18. Limitations and Antidotes for these Limitations

Several limitations were present in this study. For instance, due to the limited number of frail elders (persons aged 56 and older with notable physical and/or mental challenges) in residence in the two intermediate long term care facilities in this community, there was no control group of seniors dancing without children. Nonetheless, comparisons were still possible between the intergenerational (children and adults) creative dance group and the adults' exercise group. Furthermore, as previously stated, one time per week the intergenerational class was split, with each generation dancing alone.

As the study took place in a remote valley there was neither a resident psychologist

to conduct the research (i.e. administer the tests) nor a dance instructor to teach dance for this dissertation project. Therefore, this author had to fulfil both the roles of researcher and dance instructor and thus ran the risk of losing objectivity due to becoming a participant-observer. However, there were two other individuals involved in leading the experimental groups. Specifically, the activity leader led the New Denver exercisers and a school teacher led the Burton physical education class.

In addition, participants may have experienced the "Hawthorne effect", whereby "almost any change, any extra attention, any experimental manipulation, or even the absence of manipulation but the knowledge that a study is being done, is enough to cause subjects to change" (Kerlinger, 1965, p.318).

To counteract these limitations, several steps were taken. I took care to be as objective as possible by:

- a.) not viewing the video-tapes or reading my journal notes until about two and a half months after the dance program had been completed,
- b.) engaging others to act as recorders in simple paper and pencil tests, in administering the BO test, in coding video-taped dance lessons, and in scoring paper and pencil tests,
- c.) completing reliability checks of the paper and pencil tests as well as the video-coding discussed in the analysis of data section of this paper (section 3.13), and

d) having different group leaders conduct the exercise sessions and physical education classes.

Observations of video-taped classes by a second coder were also implemented as a control for bias in my journal records. As the same or similar observations on tape were made by an independent coder as had been made by me, it would seem that objectivity was maintained with respect to recording and noting observations. With respect to the "Hawthorne effect", all groups got attention from me during the testing situation.

Chapter 4

RESULTS

4.1. Results: Reliability and General Test-taking Observations

The reliability score for the test scoring was 96.8%, the reliability score for the video-tape coding was 94.5%. After re-examining the test items and discussing the reasons for disagreement, the scorers reached agreement on all previous disagreements. Similarly, after both coders viewed the video-tapes again, discussed the reasons for disagreements, and reflected upon the discussion, they reached agreement on all previous disagreements.

Overall, the post-testing took less time to complete than the pre-testing for the adults. For instance, it took an average of approximately three hours per adult for pre-testing and an average of approximately two hours per adult for post-testing. Most children took an average of approximately 30 to 45 minutes each for pre-testing and post-testing in most tests. The physical test for the children took less time to complete during post-testing. Although all groups got attention from me during the testing situation, not all groups demonstrated significant changes in various tests suggesting that there was little evidence for the "Hawthorne effect".

Specific test results are summarized by hypothesis with appropriate tables of means and standard deviations and/or with figures that graphically portray significant differences. Where single measures of the dependent variables were taken, the alpha level was set at $p < 0.05$. Where multiple measures of the dependent variables were taken, alpha levels were calculated using appropriate Bonferroni corrections.

It is to be noted that the pre-score and post-score refers to test administration at the beginning of the 12-week program and at the end of the 12-week program respectively. Time refers to testing that took place at the beginning and at the end of an individual dance lesson.

4.2. Hypothesis 1: Creative Dance will Enhance Motor Skills

The first hypothesis predicted creative dance would enhance motor skills. For this hypothesis, within-subject and between-subject analyses were performed for each of the two physical tests with the adult groups. Similarly, within and between analyses were performed for the physical test with the child groups.

4.2.1. Adults: Physical 1 Test

When comparing the first physical test scores for Nakusp dancers and New Denver exercisers who participated throughout the entire dance and/or exercise program,

the results indicated there was no support for the hypothesis that creative dance enhanced motor skills. Specifically, it was found that there was no main effect for group, $F(1, 17) = 1.93$, $p = 0.1826$, no main effect for pre-scores and post-scores, $F(1, 17) = 3.93$, $p = 0.0639$ and there was a nonsignificant group by pre/post interaction $F(1, 17) = 2.07$, $p = 0.1684$.

There was no significant difference between groups for the pre-test scores $F(1, 17) = 0.83$, $p = 0.3774$ and no significant difference between groups for the post-test scores, $F(1, 17) = 3.63$, $p = 0.0736$. No significant differences were found between groups when comparing difference scores $F(1, 17) = 2.07$, $p = 0.1684$. The Nakusp creative dancers had an average pre-score of 14.6 and the New Denver exercisers had an average pre-score of 12.899 which indicated that both groups began at approximately the same physical skill level. The Nakusp creative dancers had an average post-score of 16.0 and the New Denver exercisers had an average post-score of 13.11. As this test had a maximum of score of 17, it can be seen that both pre-scores and post-scores were quite high for both groups.

Examining each group separately, there was no significant difference between pre-test and post-test scores for the Nakusp dance participants who had agreed to all pre-testing, $F(1, 9) = 4.37$, $p = 0.0662$. With the Bonferroni correction there was no significant difference between pre-scores and post-scores, $F(1, 14) = 4.29$, $p = 0.0573$ even when including all Nakusp participants who agreed to be pre-tested for Physical 1 Test but had not agreed to be pre-tested for Physical 2 Test. There was no

significant difference between pre-test and post-test scores for the New Denver exercise participants. $F(1,8)=0.26$, $p=0.6224$. In other words, no significant increases in physical skills were found in either the Nakusp dancers or the New Denver exercisers. (See Table 4 for means and standard deviations.)

4.2.2. Adults: Physical 2 Test

When comparing the second physical test scores for Nakusp dancers and New Denver exercisers who participated throughout the entire dance and/or exercise program, the group by pre/post interaction was significant $F(1,16)=31.00$, $p<0.0001$, but there was no main effect for group $F(1,16)=1.80$, $p=0.1981$ and no main effect for pre/post scores $F(1,16)=2.49$, $p=0.1343$.

There was no significant difference between groups for the pre-test scores $F(1,16)=0.13$, $p=0.7269$; however, there was a significant difference between groups for the post-test scores $F(1,16)=8.71$, $p=0.0094$. Specifically, when measuring the physical abilities in Physical 2 Test, Nakusp dancers increased in physical abilities (indicated by the average pre-test score of 77.6 increasing to an average post-test score of 91.7), whereas New Denver exercisers decreased in physical abilities (indicated by the average pre-test score of 80 decreasing to an average post-test score of 72.125).

Examining each group separately, it was found there was a significant increase from

pre-test scores to post-test scores for the Nakusp dance participants, $F(1,9)=38.82$, $p=0.0002$. With the Bonferroni correction, there was no significant decrease from pre-test scores to post-test scores for New Denver exercisers $F(1,7)=5.37$, $p=0.0536$. Therefore, when using Physical 2 Test, there was support for the hypothesis that creative dance enhanced motor skills but similar findings were not found for exercise (See Table 4 for means and standard deviations.)

Table 4
Adults Physical Tests

Scores	Between Groups			
	Physical 1 Test (maximum 17)		Physical 2 Test (maximum 96)	
	Nakusp CD n=10 mean (SD)	New Denver ex n=9 mean (SD)	Nakusp CD n=10 mean (SD)	New Denver ex n=8 mean (SD)
pre-scores	14.600 (2.675)	12.889 (5.231)	77.600 (11.645)	80.000 (16.996)
post-scores	16.000 (1.764)	13.111 (4.428)	91.700 (5.677)	72.125 (20.138)
difference scores	1.400 (2.119)	0.222 (1.302)	14.100 (7.156)	-7.875 (9.613)

Physical Test 2 significant pre/post by group interaction $p < 0.0001$

Adults Physical Tests

Scores	B) Within Groups			
	Physical Test 1		Physical Test 2	
	Nakusp CD n=15 mean (SD)	New Denver ex n=9 mean (SD)	Nakusp CD n=10 mean (SD)	New Denver ex n=8 mean (SD)
pre-score	12.333 (4.835)	12.889 (5.231)	77.600 (11.645)	80.000 (16.966)
post-score	14.267 (4.559)	13.111 (4.428)	91.7000 (5.677)	72.125 (20.138)

Physical Test 2 Nakusp main effect for pre-score/post-score $p=0.0002$. CD= creative dance ex=exercise

4.2.3 Adults' Physical 2 Test, Response Rates

During the Nakusp group pre-testing, two adults refused to do the second physical test, one adult could not complete the test, and two adults were unable to do the test at all (as they were either asleep or dozed off during the testing time). However, these five adults came to the dance classes. Therefore, they were retested during post-testing and this time all five adults completed the Physical 2 Test. Their mean score was 66.4. Similarly, one of the New Denver residents refused to do pre-testing of the Physical 2 Test but agreed to participate in the post-testing. The scores of this one New Denver exerciser are not reported as this may risk identifying the subject, thereby forfeiting the promise of anonymity. All other subjects participated throughout the study.

4.2.4 Children's Physical Test: Bruininks-Oseretsky (BO) Test of Motor Proficiency

Using the percentile rank scores, it was found that there was support for the hypothesis that creative dance enhances motor skills for children. A significant main effect for mean pre-scores and mean post-scores in the Bruininks-Oseretsky (BO) test was found, $F(1,50)=20.19$, $p<0.0001$ (showing a lower mean BO percentile rank pre-score than a mean BO percentile rank post-score) and a significant main effect for group was found, $F(2,50)=5.59$, $p=0.0064$, but no significant group by pre/post interaction was found $F(2,50)=0.87$, $p=0.4248$.

Comparing the groups on pre-scores and on post-scores, there was a significant difference between groups for the pre-scores $F(2,50)=6.41$, $p=0.0033$ and a significant difference for post-scores $F(2,50)=3.00$, $p=0.0587$. Comparing difference scores, there was no significant difference between the three groups, $F(2,50)=0.87$, $p=0.4248$. In other words, the three groups began and ended the 12-week program at different physical skills levels but all three groups increased their BO scores similarly such that there was no significant difference between the increases of their scores.

When examining pre-scores and post-scores for each group individually, there was a significant difference for the mixed dance class $F(1,20)=10.31$, $p=0.0044$ and a significant difference for the Burton physical education class $F(1,12)=7.27$, $p=0.0195$. Specifically, each class showed significantly higher mean post-scores than mean pre-scores, indicating the children had improved in physical skills. Although no significant difference between pre-scores and post-scores was found for the children's only dance class $F(1,18)=3.60$, $p=0.0740$, this class also showed higher post-scores than pre-scores, indicating they had improved their physical skills, but not at a significant level. Furthermore, compared to the other classes, the children's only class had a very high mean pre-score indicating there was little room for improvement. (See Table 5 for mean and standard deviation scores.)

Table 5

Children's Physical Test Bruininks-Oseretsky Test of Motor Proficiency

Bruininks-Oseretsky Test Percentile Rank Scores							
Scores	Nakusp Dance (intergenerational) n=21 mean (SD)		Nakusp Dance (children only) n=19 mean (SD)		Burton (physical education) n=13 mean (SD)		marginals
pre-scores	48 143	(28 380)	61 316	(23 164)	29 923	(18 039)	48 396 **
post-scores	67 238	(24 570)	70 737	(21 926)	47 923	(36 784)	63 755 **
marginals	57 690		66 026		38 923		
difference scores	19 095	(27 251)	9 421	(21 647)	18 000	(24 076)	

Key ** significant difference between post-scores and pre-scores $p < 0.0001$
 ** main effect for groups $p = 0.0064$

4.2.5 Children BO Test: Response Rates

Three children were unable or refused to complete either the BO pre-testing or post-testing and therefore have been eliminated from the aforementioned pre-test and post-test scores.

4.2.6 Summary

Support for the hypothesis that creative dance enhanced the participating adults'

motor skills was dependant upon which test was used. Physical 1 Test did not support the hypotheses but average scores indicated that the creative dance group produced similar results (similar improvement of physical skills) as the exercise group. When including Nakusp creative dance participants who had agreed to be tested for Physical 1 Test but not Physical 2 Test, adult creative dance participants showed an improvement in motor skills measured by Physical 1 Test including gait (the initiation of gait, step length and height, step symmetry, and step continuity) and balance (sitting down, sitting balance, arising, immediate standing balance, and standing balance). Physical 2 Test supported the hypothesis that creative dance enhanced motor skills in adults. Specifically, the adult dancers had increased their ability to: (a) raise, lower, and circle their shoulders, (b) put their hands on their shoulders, on their heads and over their heads, (c) circle their hands and feet, (d) lift and extend their legs, (e) move their toes apart and their heels apart, and (e) alternately lift their toes and heels off the floor. Finally, the average scores indicated that the Nakusp creative dance group increased post-scores suggesting participation in creative dance classes improved the physical skills included in this test whereas New Denver exercisers showed a decrease in post-scores indicating the skills tested by this test had deteriorated.

Overall, there is support for the hypothesis that creative dance enhances motor skills for children. Furthermore, the children's BO test results indicated that both creative dance and physical education classes enhanced physical skills in children. However, participation in creative dance did not produce higher motor skill enhancement than

physical education classes in children.

4 2.7. Additional General Observations of Physical Functioning of the Seniors

In addition to the reported quantitative results, observations in physical functioning were documented. Notably, it was observed that despite physical challenges, most seniors danced and moved within their capabilities rather than trying to reach beyond their present abilities and risk injury or rather than merely sitting and watching other class members dance. For instance, two seniors came to class on portable oxygen units but still participated by slowly, gently moving their bodies. Overall, most seniors moved their upper extremities (i.e. arms, hands, and fingers) quite well but experienced difficulty moving their feet. Throughout the dance program some seniors improved their physical skills, some seniors showed no change in their physical abilities, some seniors showed physical declines and recoveries, and some seniors continued to decline physically. Physical improvement was evident by the increased ability to move more smoothly and to sustain movement involvement for longer periods of time. A decline and recovery of physical abilities was evident by the changing physical responses to the movement activities. On average, there was physical improvement; however, as may be expected in a frail elderly population, there were individual adults who showed deterioration. Nonetheless, these adults found ways to cope with their limitations (i.e. by dancing with their arms and fingers and humming when they lost control of their legs).

4.3. Hypothesis 2: Creative Dance will Increase Cognitive Abilities

It was hypothesized that creative dance would increase cognitive abilities. This increase in cognition would be demonstrated by an increase in performance scores for adults on the Wechsler Adult Intelligence Scale-Revised (WAIS-R) and by an increase in performance scores for children on the Wechsler Intelligence Scale for Children-Revised (WISC-R).

4.3.1 Adults: WAIS-R (Performance Scales)

Overall, the Performance Scales means changed in the direction predicted, namely, that post-test scores were greater than pre-test scores and Nakusp creative dance participants' mean post-scores were greater than New Denver exercise participants' mean post-scores. However, the differences were not significant, therefore there was no support for the hypothesis that creative dance increased cognitive abilities in adults. Specifically, the main effect was not significant for pre to post performance scores $F(1, 14)=1.36$, $p=0.2628$; the group differences were nonsignificant $F(1, 14)=0.77$, $p=0.3939$, and the group by pre/post performance interaction was nonsignificant $F(1, 14)=0.20$, $p=0.6639$. There was no significant difference between groups for pre-test scores $F(1, 14)=0.73$, $p=0.4079$ or for post-test scores $F(1, 14)=0.73$, $p=0.4079$. In other words, both groups began and ended the program at about the same cognitive level as measured by the WAIS-R test.

Comparing difference scores, there was no significant difference between Nakusp dancers and New Denver exercisers $F(1, 14)=0.20, p=0.6639$. However, both had increased their difference mean scores, Nakusp dancers by 2.6 and New Denver exercisers by 1.16. Furthermore, more Nakusp dancers than New Denver exercisers were able to complete the performance test at the end of the dance program. When examining pre-scores and post-scores for each group, no significant difference was found for Nakusp dancers $F(1, 9)=1.88, p=0.2040$ and no significant difference was found for New Denver exercisers $F(1, 5)=0.18, p=0.6864$. (See Table 6 for means and standard deviation scores.)

Table 6

Adults Cognitive Test (WAIS-R) Wechsler Performance Scale Scores

Scores	Nakusp Dance (intergenerational dance) n=10		New Denver (Exercise only) n=6		
	mean	(SD)	mean	(SD)	marginals
pre-scores	80.500	(11.018)	76.333	(5.645)	78.938
post-scores	83.100	(14.012)	77.500	(9.915)	81.000
marginals	81.800		76.917		
difference scores	2.600	(6.004)	1.167	(6.676)	

4.3.2. Adults: WAIS-R (Performance Scales), Response Rates.

In the Nakusp dance group, four adults were unable and one adult refused to be pre-tested on the WAIS-R Performance Subscales. (These were the same adults who were unable or refused to be pre-tested on the Physical 2 Test.) At the end of the program, four of these five adults completed the WAIS-R post-testing, scoring a mean of 69.75 and one adult was still unable to do the WAIS-R because of extremely poor eyesight. In the New Denver exercise group, two adults were unable and one adult refused to do the WAIS-R pre-testing. All three adults attempted to do the WAIS-R post-testing but were unable to complete the testing (either due to poor eyesight or to not understanding the directions). In general, it should be noted that all adults struggled with the Picture Arrangement and Picture Completion due to a combination of poor eyesight and the small somewhat detailed pictures.

4.3.3. Children: WISC-R (Performance Scales)

Performance scores increased for all children's groups, supporting the hypothesis that creative dance would increase cognitive abilities and also indicating that physical education classes increased cognitive abilities. Statistically, it was found that there was a significant main effect for pre-scores and post-scores for the WISC-R performance scales $F(1,50)=267.96, p<0.0001$; namely, the mean performance post-score was higher than the mean performance pre-score. However, there was no significant main effect for groups $F(2,50)=1.39, p=0.2574$ and no significant group by

performance interaction $F(2,50)=1.69$, $p=0.1949$. In other words, with respect to pre-test and post-test scores all groups began at approximately the same performance level and all groups increased post-scores but the post-score increases for each group were not significantly different from each other.

When comparing difference scores, there was no significant difference amongst the three groups, $F(2,50)=1.69$, $p=0.1949$. When averaging the difference scores of the two dance groups, the averaged difference scores of the dance groups were higher than the average difference score of the nondance group but the dance groups scores were not significantly higher than the nondance group, $t=1.8353$, $p=0.0724$.

Within groups analysis showed there was a significant difference between pre-scores and post-scores for each group: the mixed dance group $F(1,20)=129.93$, $p<0.0001$, the dance without adults group $F(1,18)=108.98$, $p<0.0001$, and the nondance group $F(1,12)=54.28$, $p<0.0001$. (See Table 7 for means and standard deviations.)

Table 7

Children Cognitive Test (WISC-R) Wechsler Performance Scale Scores

Scores	Nakusp Dance (intergenerational) n=21		Nakusp Dance (children only) n=19		Burton (physical education) n=13		marginals
	mean	(SD)	mean	(SD)	mean	(SD)	
pre-scores	104.381	(9.693)	108.947	(9.812)	106.308	(10.045)	106.491
post-scores	118.524	(9.532)	123.368	(11.031)	117.231	(10.010)	119.943
marginals	111.452		116.158		111.769		
difference scores	14.143	(5.686)	14.421	(6.021)	10.923	(5.346)	

* significant main effect for pre/post $p < 0.0001$

4.3.4. Children: WISC-R (Performance Scales), Response Rates.

As with the BO test, three children were unable or refused to complete the WISC-R pre-test but were able to complete the WISC-R post-test. Therefore, their scores have not been included.

4.3.5. Summary

It appeared that although there was a slight increase in average post-scores in both exercise and creative dance adult groups, the increase was not significant.

Therefore, there is no support for hypothesis 2 in adults; namely, that creative dance

would enhance cognition. On the other hand, significant differences between post-scores and pre-scores were found for all the children's groups where post-scores increased. This result suggests physical activities may enhance cognition in children and therefore may give support to the hypothesis that creative dance enhances cognition in children, but maturation may also explain part of the differences between post-scores and pre-scores.

4.4. Hypothesis 3: Creative Dance will Increase Positive Affect

It was hypothesized that creative dance would increase positive affect. Both short term effects (directly after class) and long term effects (over the duration of 12 weeks) were examined. Affect was quantified several ways. With adults, six emotion scales scaled from 0 (do not feel at all) to 24 (feel very strongly) and three semantic differential scales ("good/bad", "pleasant/unpleasant", and "relaxed/tense" on a scale of 1 to 5) were presented before and after dance or exercise class during weeks 1, 6, and 12. The scores were analyzed by collapsing the three positive scales ("happy", "interest", and "agreeable") and by collapsing the three negative scales ("sad", "angry", and "fearful"). Chi square analysis was performed on the semantic differential scales of "good/bad", "pleasant/unpleasant", and "relaxed/tense". Finally, changes in depression were analyzed using the Beck Depression Inventory scores taken before, midway through, and after the dance or exercise program. With the children, the "happy/sad" faces scale was used to note changes in emotions before and after dance class during weeks 1, 6, and 12.

Changes in self-concept were analyzed using the Cratty Self-Concept Scale taken before, midway through, and after the dance or exercise program

4.4.1 Adults: Positive Emotions

Support for the third hypothesis was found when movement, whether it was creative dance or exercise, increased positive affect in adults. Specifically, when comparing positive emotions changes before and after class for the three testing times (weeks 1, 6, and 12) for Nakusp dancers and New Denver exercisers, it was found that there was a main effect for group $F(1, 15)=13.91$, $p=0.0020$, there was a main effect for pre/post scores $F(1, 15)=30.94$, $p=0.0001$ but the pre/post test by group interaction was not significant $F(1, 15)=4.08$, $p=0.0617$. Examining mean positive emotion scores, New Denver exercise participants had higher mean positive emotion scores than Nakusp dance participants and each group showed an increase in post-scores.

Pre/post mean scores showed that the New Denver exercisers' pre-scores and post-scores remained relatively high and the Nakusp dancers' pre-scores and post-scores were generally lower but increased from pre-test to post-test each testing time. All other findings were nonsignificant. Specifically, time of testing was nonsignificant, $F(2, 30)=0.58$, $p=0.5687$, time by group interaction was nonsignificant, $F(2, 30)=1.10$, $p=0.3457$, time by pre/post test interaction was nonsignificant, $F(2, 30)=1.34$, $p=0.2767$, and the three way interaction of time, group, and test was nonsignificant, $F(2, 30)=2.20$, $p=0.1282$.

Comparing difference scores, there was no main effect for group, $F(1, 15)=4.08$, $p=0.0617$, there was no main effect for time, $F(2, 20)=1.34$, $p=0.2767$, and there was no significant time by group interaction, $F(2, 30)=2.20$, $p=0.1282$. Overall, New Denver exercisers' mean difference scores were relatively stable. Specifically, as exercise participants in New Denver scored high positive scores for both pre-tests and post-tests during each of the test times, the difference scores showed little change over the three testing times. However, Nakusp dancers' mean difference scores increased over the three testing times whereby there was an increase in positive scores from pre-test to post-test each week with the highest difference score (greatest increase from pre-test to post-test) occurring on week 12. (See Table 8 for means and standard deviations.)

Within groups analysis indicated that for the Nakusp dancers, there was a main effect for pre/post scores $F(1, 8)=3.02$, $p=0.0008$, no main effect for time of testing $F(2, 16)=0.59$, $p=0.5657$, and no significant pre/post by time interaction $F(2, 16)=3.02$, $p=0.0773$. In other words, the post-scores increased significantly from pre-scores indicating that Nakusp dancers reported feeling more positive after participating in dance class on each of the 3 testing times: weeks 1, 6, and 12. Within groups analysis for New Denver exercisers indicated that, with Bonferroni corrections, there was no main effect for pre/post scores $F(1, 7)=6.79$, $p=0.0351$, no main effect for time of testing $F(2, 14)=1.25$, $p=0.3166$, and no significant pre/post by time of testing interaction $F(2, 14)=0.21$, $p=0.8130$. In other words, New Denver exercisers' post-scores did not increase significantly from pre-scores at any of the three testing times.

Table 8

Adults Affective Test (a)

Adults Positive Emotions Scales				
Scores	Nakusp Dance (intergenerational) n=9		New Denver (exercise only) n=8	
	mean	(SD)	mean	(SD)
Week 1				
pre	13 778	(6 815)	17 625	(5 066)
post	16 963	(5 232)	20 833	(5 155)
Week 6				
pre	12 556	(6 667)	20 792	(6 650)
post	16 000	(5 888)	22 792	(1 368)
Week 12				
pre	12 074	(3 415)	20 000	(3 013)
post	20 778	(2 759)	21 958	(2 722)
Difference Scores	Nakusp Dance (intergenerational) n=13		New Denver (exercise only) n=8	
	mean	(SD)	mean	(SD)
Week 1 (Post-pre)	1 282	(7 043)	3 000	(3 158)
Week 6 (Post-pre)	3 282	(4 422)	2 000	(6 317)
Week 12 (Post-pre)	7 205	(5 124)	1 958	(2 774)

main effect for group $p=0.0020$ (Nakusp mean = 15.39, New Denver mean = 22.67)

main effect for pre/post $p=0.0001$ (pre mean = 15.94, post mean = 19.77)

4.4.2. Adults: Negative Emotions

The findings show that movement, whether it is dance or physical exercises, results in fewer negative emotions. Specifically, there was a main effect for pre/post scores $F(1, 15)=15.81$, $p=0.0012$ but there was no main effect for groups $F(1, 15)=0.13$,

$p=0.7262$ and no main effect for time $F(2,30)=0.51$, $p=0.6072$. In other words, there was a decrease in average post-scores every test day for each group, meaning that participating in either creative dance or exercise decreased negative emotions. None of the interactions were significant: (a) time by group $F(2,30)=1.70$, $p=0.2003$, (b) pre/post by group $F(1,15)=1.95$, $p=0.1831$, (c) time by pre/post $F(2,30)=0.22$, $p=0.8008$, (d) time by pre/post by group $F(2,30)=0.46$, $p=0.6387$. Difference scores show there is no significant difference between groups $F(1,15)=1.95$, $p=0.1831$ or time $F(2,30)=0.22$, $p=0.8008$ indicating that decreases in average post-scores were not significantly different for each group on each of the three testing times (on weeks 1, 6, and 12). (See Table 9 for means and standard deviations.)

Within groups analysis indicated that for Nakusp dancers, there was a main effect for pre/post scores $F(1,8)=15.72$, $p=0.0042$, no main effect for time of testing $F(2,16)=1.15$, $p=0.3401$, and no significant pre/post by time interaction, $F(2,16)=0.57$, $p=0.5775$. In other words, the post-scores increased significantly from pre-scores indicating that Nakusp dancers reported feeling less negative after participating in dance class on each of the three testing times (weeks 1, 6, and 12). However, for the New Denver exercisers, there was no main effect for pre/post scores $F(1,7)=3.06$, $p=0.1239$, no main effect for time of testing $F(2,14)=0.99$, $p=0.3952$, and no significant pre/post by time of testing interaction $F(2,14)=0.16$, $p=0.8517$.

Table 9
Adults Affective Test (b)

Adults Negative Emotions Scales				
Scores	Nakusp Dance (intergenerational) n=9		New Denver (exercise only) n=8	
	mean	(SD)	mean	(SD)
<hr/>				
Week 1				
pre	5.852	(4.537)	4.125	(4.694)
post	2.370	(1.874)	2.083	(1.330)
<hr/>				
Week 6				
pre	5.667	(4.525)	2.500	(2.731)
post	1.704	(1.637)	1.417	(1.179)
<hr/>				
Week 12				
pre	4.111	(4.106)	5.208	(5.648)
post	1.667	(1.236)	3.583	(6.031)
<hr/>				
Week 1				
Difference (Post-pre)	-3.481	(3.941)	-2.042	(4.962)
<hr/>				
Week 6				
Difference (Post-pre)	-3.963	(3.653)	-1.083	(2.543)
<hr/>				
Week 12				
Difference (Post-pre)	-2.444	(2.977)	-1.625	(3.369)
<hr/>				
main effect for pre/post $p=0.0012$ (pre mean = 4.61, post mean = 2.12)				

4.4.3. Adults: Semantic Differential Scale

Support was found for creative dance increasing positive affect; namely, feeling "relaxed" during the first week of the dance program. Specifically, using Chi-square analysis to examine pre-scores and post-scores during weeks 1, 6, and 12 for the "good/bad", "pleasant/unpleasant", and "relaxed/tense" differential scales, it was

found that for Nakusp dancers, changes in the “relaxed/tense” scale during week 1 were statistically significant, $\chi^2_{(3)}=13.000$, $p=0.0046$, with more participants reporting “very relaxed” at post-testing than at pre-testing. Specifically, during week 1 pre-testing, eight people reported themselves as “very relaxed”, one as “relaxed”, three as neither “relaxed” nor “tense”, and one as “very tense” but during week 1 post-testing, 12 people scored themselves as “very relaxed” and one as neither “relaxed” nor “tense”. (See Figure 1.)

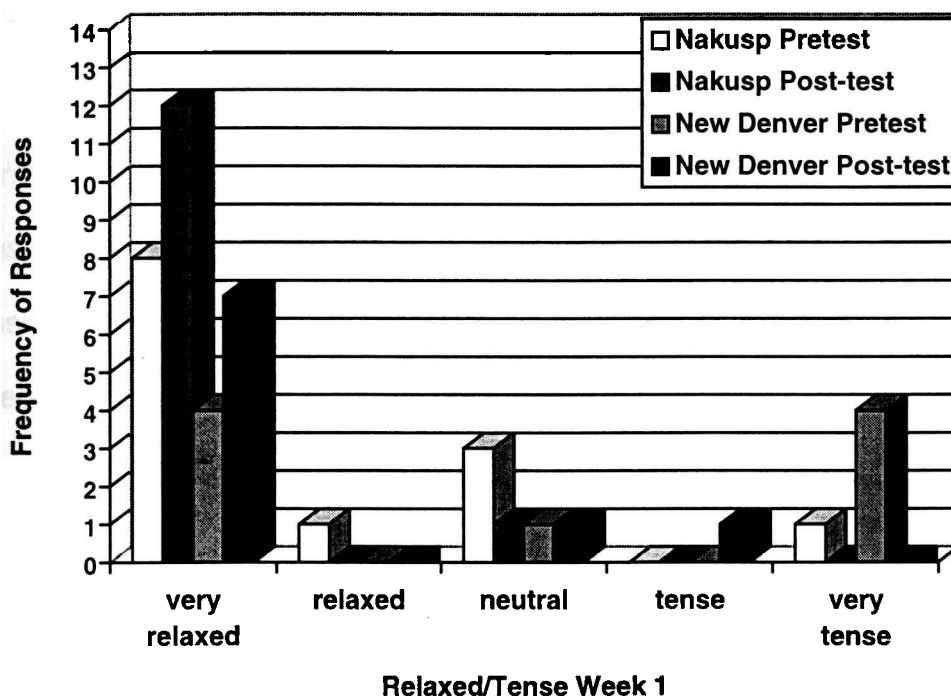


Figure 1: Effects of Creative Dance and Exercise on Relaxation and Tension

With the Bonferroni correction, changes for the Nakusp dancers on the "good/bad" scale during week 2 was not statistically significant, $\chi^2(6)=14.182$, $p=0.0277$.

Nonetheless, more Nakusp dance participants reported feeling "very good" at post-testing than at pre-testing. Specifically, during pre-testing, five people scored themselves as feeling "very good", one as "good", six as neither "good" nor "bad", and one as "very bad" but at post-testing, 11 people scored themselves as feeling "very good", one as "good", and one as neither "good" nor "bad". None of the pre-scores and post-scores for the New Denver exercisers were statistically significant.

Comparing the Nakusp dance group and New Denver exercise group pre-scores and post-scores during weeks 1, 6, and 12, none of the results were statistically significant even though more Nakusp dancers than New Denver exercisers moved towards feeling "good" on the "good/bad" scale on week 1. Specifically, eight Nakusp dancers and two New Denver exercisers moved towards "good", five Nakusp dancers and two New Denver exercisers stayed the same, and no Nakusp dancers and three New Denver exercisers moved towards "bad" on the semantic differential "good/bad" scale, but with the Bonferroni correction, these findings were not statistically significant, $\chi^2(2)=6.1888$, $p=0.0453$.

4.4.4. Adults: Beck Depression Inventory (BDI)

The findings show that there was no significant difference between groups at pre-testing $F(1,17)=0.06$, $p=0.8042$. There was no main effect for BDI testing times,

$F(2,34)=3.03$, $p=0.0615$, there was no main effect for groups $F(1,17)=0.43$, $p=0.5226$, and there was no significant time by group interaction $F(2,34)=1.81$, $p=0.1796$. In other words, the groups began at approximately the same level of depression and although average scores increased on time two (week 6) for New Denver exercisers, no significant differences were found between groups for scores or times of testing. With respect to difference scores, there was no main effect for BDI testing times $F(2,34)=2.52$, $p=0.0952$, no main effect for group $F(1,17)=2.71$, $p=0.1184$, and no time by group interaction, $F(2,34)=0.59$, $p=0.5589$.

However, according to guidelines given by the BDI inventory, Nakusp dancers mean scores moved from "mild-moderate" depression on pre-testing and mid-testing (10 to 18 being "mild-moderate") to the "normal" range on post-testing (0 to 9 being within "normal" range). The New Denver exercisers mean scores remained within the "mild-moderate" depression range at all three testing times (pre-testing, mid-testing, and post-testing). Furthermore, when examining the scores for Nakusp dancers, there was a significant difference amongst pre-testing, mid-testing, and post-testing scores, $F(2,18)=7.07$, $p=0.0054$. Specifically, there was a significant difference between post-scores and pre-scores, $F(1,9)=11.23$, $p=0.0085$ (with post-scores being lower than pre-scores, indicating a significant decrease in depression). With the Bonferroni correction, there was no significant difference between post-scores and mid-scores, $F(1,9)=6.44$, $p=0.0318$ (even though post-scores were lower than mid-scores, indicating a decrease in depression). There was no significant difference between mid-scores and pre-scores, $F(1,9)=1.49$, $p=0.2526$. When

examining the scores for New Denver exercisers, there was no significant difference amongst the pre, mid, and post scores, $F(2, 16)=0.45$, $p=0.6466$. In other words, examining each group individually indicated that Nakusp dance participants significantly decreased depression over time but New Denver exercisers did not show significant decreases in depression over time. Therefore, limited support was found for creative dance increasing positive affect because Nakusp dancers showed decreases in average depression scores over time. (See Table 10 for means and standard deviations.)

Table 10
Adults Affective Test (c)

Adults Beck Depression Inventory				
Scores	Nakusp Dance (intergenerational) n=10		New Denver (exercise only) n=9	
	mean	(SD)	mean	(SD)
pre	11.800	(9.053)	10.889	(6.294)
mid	10.100	(8.621)	12.778	(7.902)
post	6.000	(5.249)	10.556	(9.580)
Difference (Post-mid)	-4.100	(5.109)	-2.222	(6.399)
Difference (Post-pre)	-5.800	(5.473)	-0.333	(8.803)
Difference (Mid-pre)	-1.700	(4.398)	1.889	(7.390)

significant main effect for mid-scores and post-scores $p=0.0286$

4.4.5 Adults: Response Rates

All Nakusp and New Denver adults who were present during the testing days completed the positive and negative emotions self-report questionnaire. However, two Nakusp adults refused and three Nakusp adults were unable to complete the BDI pretesting. (These were the same adults who refused or could not complete the previously mentioned cognitive and physical tests.) Specifically, by mid-testing, all five of these Nakusp adults agreed to try to answer the BDI questions and only one adult was unable to complete the testing. The four adults who completed the mid-testing scored a mean of 9. Finally, all participants answered and completed the BDI post-testing with a mean score of 5.4. All New Denver adults were able and willing to complete the BDI at pre-test, mid-test, and post-test times.

4.4.6 Children: "Happy/Sad" Faces Scale

The hypothesis that creative dance would increase positive affect was not supported in the short term for children. Specifically, when comparing changes in the "happy/sad" faces scale before and after class for the three testing times (weeks 1, 6, and 12) for the Nakusp mixed dance class, the Nakusp children's only class, and the Burton physical education class, all findings were non significant. There was no main effect for group $F(2,36)=1.06$, $p=0.3587$, no main effect for time $F(2,72)=0.76$, $p=0.4697$, and no main effect for pre/post scores $F(1,36)=0.30$, $p=0.5899$. There was no significant time by group interaction $F(4,72)=0.28$, $p=0.8907$, no significant

pre/post by group interaction $F(2,36)=0.63$, $p=0.5403$, no significant time by pre/post interaction, $F(2,72)=1.67$, $p=0.1954$, no significant three way interaction of time by pre/post scores by group, $F(4,72)=0.80$, $p=0.5263$. (See Table 11 for means and standard deviations.)

With respect to difference scores, there was no main effect for group $F(2,36)=0.63$, $p=0.5403$ or difference scores $F(2,72)=1.67$, $p=0.1954$, nor was there a significant group by difference score interaction, $F(4,72)=0.80$, $p=0.5263$.

Table 11
Children Affective Test (a)

Children "Happy/Sad" Faces Scale						
Scores	Nakusp Dance (intergenerational) n=20		Nakusp (children only) n=13		Burton (Exercise only) n=8	
	mean	(SD)	mean	(SD)	mean	(SD)
Week 1						
pre	1 500	(0 618)	1 846	(1 504)	1 250	(0 463)
post	1 500	(0 515)	1 154	(0 376)	1 375	(0 518)
Week 6						
pre	1 500	(0 767)	1 769	(1 235)	1 250	(0 744)
post	1 667	(1 042)	1 769	(1 050)	1 625	(0 354)
Week 12						
pre	1 444	(1 042)	1 538	(1 050)	1 125	(0 354)
post	1 667	(0 767)	1 846	(1 281)	1 250	(0 463)
<div style="display: flex; justify-content: space-around; margin-top: 10px;"> n=18 n=13 n=8 </div>						
Week 1						
Difference (Post-pre)	0 000	(0 686)	0 692	(1 109)	-0 125	(0 354)
Week 6						
Difference (Post-pre)	-0 167	(0 985)	0 000	(2 121)	-0 375	(1 061)
Week 12						
Difference (Post-pre)	-0 223	(1 215)	- 0 308	(0 855)	- 0 125	(0 641)

On this scale, the low score signified happiness and the high score signified unhappiness. Overall, the average scores were very low for both groups, thereby indicating that dancers and physical education students were quite happy before and after classes, leaving little room for improvement.

4.4.7. Children: Response Rates

All children who were present during the days of testing participated in the self-report measure and all reports have been included in the aforementioned results.

4.4.8. Children: Cratty Self-Concept Scale

The hypothesis that creative dance would increase positive affect was not supported in the long term for children. When examining the Cratty Self-Concept Scale results, it was found that there was no main effect for groups $F(2,50)=2.02$, $p=0.1431$, no main effect for the time of testing, $F(2,100)=1.28$, $p=0.2838$, and no significant interaction between group and time of testing $F(4,100)=0.88$, $p=0.4796$.

The mean scores for each group indicated that although all mean scores were quite high, the Burton exercise group score decreased for the second test (at the midpoint of the program) and increased back to the pre-test level during post-testing whereas the two Nakusp dance groups stayed relatively stable. (See Table 12 for means and standard deviations.)

Examining difference scores for the Cratty Self-Concept Scale (Cratty post minus mid, mid minus pre, and post minus pre) showed there was no main effect for group $F(2, 50)=0.84$, $p=0.4386$ and no main effect for time $F(2, 100)=2.53$, $p=0.0846$. There was a nonsignificant time by group interaction $F(4, 100)=0.92$, $p=0.4552$.

Table 12
Children Affective Test (b)

Children Cratty Self-Concept Scale (maximum 20)						
Scores	Nakusp Dance (intergenerational) n=21 mean (SD)		Nakusp Dance (children only) n=19 mean (SD)		Burton (Exercise only) n=13 mean (SD)	
pre	15.619	(3.232)	14.263	(3.827)	16.077	(3.774)
mid	15.571	(3.340)	13.947	(3.423)	14.769	(4.246)
post	16.476	(3.750)	13.737	(4.012)	16.077	(3.499)
Difference (Post-pre)	0.857	(3.410)	-0.526	(4.221)	0.000	(1.528)
Difference (Post-mid)	0.905	(2.406)	-0.211	(3.924)	1.308	(2.529)
Difference (Mid-pre)	-0.048	(2.906)	-0.316	(3.606)	-1.308	(2.496)

4.4.9. Children: Response Rates

Three children refused to complete the Cratty Self-Concept testing, so their scores

have not been included in the aforementioned analysis

4.4.10 Summary of Affective Findings

Movement, whether dance or physical exercise, resulted in an increase in positive emotions and a decrease in negative emotions for adults, thus supporting the hypothesis that creative dance could increase positive affect. Using "good/bad", "pleasant/unpleasant" and "relaxed/tense" scales, there was a significant difference in pre-scores and post-scores for Nakusp dancers in the first week with more dancers reporting a move towards feeling "very relaxed" after participating in creative dance. No statistical differences were found between pre-scores and post-scores for New Denver exercisers and no significant differences were found between Nakusp dancers and New Denver exercisers on the semantic differential scale. Thus, it would seem that for the short term, more positive changes were noted for Nakusp than New Denver, suggesting creative dance does increase a general "relaxed", "feeling good" state, thereby increasing positive affect. Although no significant differences were found between groups or testing times, overall mean depression scores were low for Nakusp dancers and decreased from the "mild-moderate depression" range to the "normal" range whereas the New Denver exercisers remained within the "mild-moderate depression" range. These findings suggest there may have been a long term impact of the creative dance program on reducing depression.

The results for the children indicated all groups reported feeling quite happy before and after class, suggesting there may have been a ceiling effect. Therefore, the hypothesis was not supported that creative dance (or other physical activity such as physical education classes) increases positive affect for the short term in happy children. Similar results were found for the Cratty Self-Concept Scale; namely, that, on average, all the children reported high scores in self-concept and did not fluctuate a great deal throughout the 12-week program. Thus, the hypothesis was not supported that creative dance (or other physical activity such as physical education classes) increases affect for the long term in children when self-concept scores are over the 70th percentile.

4.4.11. Additional General Observations of Adults' Emotions in the Creative Dance Class

During most weeks, most seniors participated cheerfully in the dance activities. However, there were occasions when some of the seniors were initially unhappy but enjoyed the activities as the class progressed. It was observed that after listening to the first musical selection and participating in some gentle breathing and small arm movements, the initial unhappiness disappeared and was replaced by more animated facial expressions and more enthusiastic involvement in the rest of the dance activities. In the first two weeks, some seniors were a bit reluctant to dance and watched the other adults dance or wandered out of the dance room before the dance session was finished, but from the third week onwards, all the seniors who

had chosen to dance remained in the dance room for the duration of the lesson even though one or two seniors occasionally fell asleep. By the tenth week, many seniors were encouraging each other to dance and participated happily with props, especially enjoying the flowing motions of pipe cleaners with streamers on them.

4.5. Hypothesis 4: An Intergenerational Creative Dance Class will have a Greater Positive Effect on Children's Affect than a Creative Dance Class without the Elderly Participants.

The issue of whether an intergenerational creative dance class would have a greater positive effect on children's affect than a creative dance class without the elderly participants was examined by analyzing scores from the "happy/sad" faces scale and the Cratty Self-Concept Scale.

4.5.1. "Happy/Sad" Faces Scale

When comparing changes in the "happy/sad" faces scale before and after class for the three testing times (weeks 1, 6, and 12) for the Nakusp intergenerational dance class and the Nakusp children's only class, there was no main effect for group $F(1,29)=0.26$, $p=0.6140$, no main effect for time $F(2,58)=0.70$, $p=0.4996$, and no main effect for pre/post scores $F(1,29)=0.00$, $p=0.9962$. There was no significant time by group interaction $F(2,58)=0.20$, $p=0.8203$, no significant pre/post by group

interaction $F(1,29)=0.76$, $p=0.3892$, no significant time by pre/post interaction, $F(2,58)=2.46$, $p=0.0941$, and no significant three way interaction of time by pre/post scores by group, $F(2,58)=0.98$, $p=0.3798$. (See Table 11 for means and standard deviations in Section 4.3.6.)

With respect to difference scores, there was no main effect for group $F(1,29)=0.76$, $p=0.3892$ or difference scores $F(2,58)=2.46$, $p=0.0941$, nor was there a significant group by difference score interaction, $F(2,58)=0.98$, $p=0.3798$.

Although the results indicate the average scores were very low for both groups, indicating that the students in both dance groups were quite happy before and after classes, the intergenerational group did not have a greater positive effect on children's affect than the children's only class. Therefore, when using the "happy/sad" faces scale, there was no support for the fourth hypothesis that an intergenerational creative dance class would have a greater positive effect on children's affect than a creative dance class without the elderly participants.

4.5.2. Cratty Self-Concept Scale

For the Cratty Self-Concept Scale scores, there was a main effect for groups but with the Bonferroni correction, it was not significant, $F(1,38)=4.02$, $p=0.0521$. There was no main effect for time $F(2,76)=0.20$, $p=0.8165$ and no significant time by group interaction $F(2,76)=0.91$, $p=0.4079$. Looking at the mean scores for each creative

dance group, there was a tendency for the average Cratty Self-Concept Scale score to increase (showing an increase in self-concept) in the intergenerational group whereas there was a tendency for the average Cratty Self-Concept Scale score to decrease (showing a decrease in self-concept) in the children's only group. (See Table 12 for means and standard deviations in Section 4.3.8.)

Although there was a tendency for children in the intergenerational class to improve their self-concept scores, the fourth hypothesis, that an intergenerational creative dance would have a greater positive effect on children's affect than a creative dance class without the elderly participants, was not statistically supported.

4.6. Hypothesis 5: Creative Dance will Increase Social Skills

Although technical difficulties with respect to video-taping prohibited empirical testing and eliminated the use of the categories of "appreciating self and/or others" and "watching others" from the coding sheet, the video-taped lessons were useful resources as they enabled a second coder to record visible social changes in the dance participants as well as provide an additional source with which to cross validate journal notes. Thus, student behaviours in the social skills categories of cooperation, following, leading, communication, sense of belonging, and awareness of others were observed and reported.

Overall, participating in creative dance increased and/or maintained social skills. The

high scores in cooperation, communication, sense of belonging, and awareness of others categories indicated that creative dance activities were conducive to cooperating with other dancers, communicating (through following directions and responding to music) and being aware of others. Although some fluctuation in scores was noted in the sense of belonging category (i.e. in the children's scores in week 4 for Activity One and for group work and in the somewhat low adult scores for Activity One on weeks 1 and 4), participants' scores were high for all other activities suggesting involvement in creative dance may have increased a sense of belonging in most dancers. The categories of leading and following indicated that in the one video-taped session (on week 4) children were more prone to leading and were able to lead successfully whereas adults followed their child partners. (See Table 13 and Table 14.)

Table 13

Video-taped Observations of Social Skills

Activity One												
	Tape 1 (week 1)			Tape 2 (week 4)			Tape 3 (week 8)			Tape 4 (week 12)		
	G1	G2	An	G1	G2	An	G1	G2	An	G1	G2	An
	n=18	cn=20	An=12	n=16	cn=16	An=9	n=19	cn=21	An=11	n=19	cn=21	An=14
SOCIAL SKILLS	(Scale 0-3)			(Scale 0-3)			(Scale 0-3)			(Scale 0-3)		
COOPERATION with teacher	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	2 89	3 00	3 00
FOLLOWING teacher	3 00	3 00	1 75	2 81	2 81	1 56	2 53	2 76	1 64	2 68	2 95	2 29
LEADING (N/A)												
COMMUNICATION												
follows directions	2 67	3 00	1 75	2 81	2 81	1 56	2 74	3 00	2 00	2 68	2 95	2 29
responds to music	N/A	N/A	N/A	3 00	3 00	1 67	2 24	3 00	3 00	2 89	2 95	2 64
watches other dancers	N/A	N/A	0 08	N/A	N/A	0 89	N/A	0 18	0 19	N/A	N/A	0 79
SENSE OF BELONGING												
participates with group	3 00	3 00	1 75	2 94	2 81	1 56	3 00	3 00	2 27	3 00	3 00	2 36
AWARE OF OTHERS												
does not bump into others	2 88	3 00	N/A	3 00	3 00	N/A	3 00	3 00	N/A	3 00	3 00	N/A
Key	G1 n = group 1, children "n" (children's only class) G2 cn = group 2, children "n" (intergenerational class) G2 An = group 2, adult "n" (intergenerational class) N/A = not applicable											

Table 14
Videotaped Observations of Social Skills

	<u>Group Work</u>											
	Mirror/Squeeze Ball			Props			Dance Concepts			Mime/Dance		
	Tape 1 (week 1)			Tape 2 (week 4)			Tape 3 (week 8)			Tape 4 (week 12)		
	G1	G2	An	G1	G2	An	G1	G2	An	G1	G2	An
	n=18	cn=20	An=12	n=16	cn=16	An=9	n=19	cn=21	An=11	n=19	cn=21	An=14
SOCIAL SKILLS	(Scale 0-3)			(Scale 0-3)			(Scale 0-3)			(Scale 0-3)		
COOPERATION with dancers	1 84	3 00	2 38	3 00	3 00	N/A	3 00	2 90	2 43	3 00	3 00	3 00
FOLLOWING other dancers	N/A	0 00	2 38	1 65	2 38	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEADING lead partner	N/A	3 00	0 00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
lead group	N/A	N/A	N/A	3 00	3 00	3 00	N/A	N/A	N/A	N/A	N/A	N/A
COMMUNICATION follows directions	1 89	3 00	2 31	3 00	3 00	N/A	3 00	3 00	3 00	3 00	3 00	3 00
responds to music	3 00	3 00	3 00	3 00	3 00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
watches other dancers	N/A	N/A	N/A	2 59	1 81	2 64	2 16	(not seen)		N/A	N/A	N/A
SENSE OF BELONGING participates with partner	N/A	2 70	2 54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
participates with group	3 00	N/A	N/A	1 65	2 38	N/A	3 00	3 00	3 00	3 00	3 00	3 00
AWARE OF OTHERS does not bump into others	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00
Key	G1 n = group 1, children "n" (children's only class) G2 cn = group 2, children "n" (intergenerational class) G2 An = group 2, adult "n" (intergenerational class) N/A = not applicable											

Thus, given the aforementioned limitations with respect to reporting only observed behaviours, it appeared the fifth hypothesis, that creative dance would increase social skills, was partially supported for most of the social skills categories. The high base rate scores for many social skills suggests these social skills were maintained throughout the weeks in the creative dance classes.

Each social skills category is discussed separately based on observations from video recordings of activity one, which emphasized following the dance teacher, and group work on weeks 1, 4, 8, and 12, which emphasized projects designed to enhance group interaction and cooperation. Journal observations are reported to provide additional insight to the video-taped observations of enhanced or maintained social skills.

4.6.1. Cooperation: Cooperates with teacher / cooperates with dancers

With the exception of the children's only class on week 4, all dancers cooperated with the dance teacher during Activity One. In the group work, cooperation with other dancers: (a) increased from week 1 to week 4 and remained high in weeks 8 and 12 for the children in the children's only class, (b) decreased slightly on week 8 and increased on week 12 for the children in the intergenerational class, and (c) increased throughout the weeks for the adults in the intergenerational class.

4.6.2. Following: Follows teacher / follows partner

Although not following the dance teacher as often on weeks 4, 8, and 12, overall high scores indicated that most children followed the dance teacher most times throughout the 4 video-taped weeks. On the other hand, the adults showed a steady decline in following the dance teacher on weeks 1, 4, and 8 but showed an increase in following the dance teacher on week 12. In the group activities, most adults

followed their child partners in partner work (mirroring) and most children could follow their leaders in the lead/follow activity. Differences between dance groups were observed in group work and are reported in hypothesis 6, Section 4.6

4.6.3. Leading: Can lead a partner / can lead a group

During Activity One, no students were leaders. In the lead/follow activity in group work, all the children willingly took turns leading their particular group using squeeze balls, frisbees, or scarves; all the adults watched.

4.6.4. Communication: a) follows directions, b) responds to music, c) watches other dancers

4.6.4a. Follows directions

Video-taped recording noted that during Activity One, all the children followed the dance teacher's directions most times on weeks 1, 4, 8, and 12 and many adults followed the dance teacher's directions and steadily increased their ability to follow directions during weeks 8 and 12. During group activities, there was an increase by week 4 in following directions (where applicable) for all groups and by weeks 8 and 12, all participants followed directions.

Journal notes indicated that throughout the dance program, all the children

consistently followed directions well from weeks 7 to 11 for miming, creative dance, and mime/dance activities which included such activities as the driving/shopping mime, the "posing/melting" dance, the dancing like birds, seaweed, cowboys/cowgirls, astronauts, or campers, the drawing and dancing pathways, and the moving into "museum-statue-poses". At first, the adults watched activities but by week 7, they began to participate actively. All the adults watched the driving/shopping mime, but most adults participated in the dancing like birds, seaweed, cowboys/cowgirls, astronauts or campers activity, and all adults participated in the "posing/melting" and dancing pathways activities. However, the last activity, the museum activity introduced on week 11, was complex and the adults watched the children. Differences between dance groups were observed in group work and are reported in the appropriate section in hypothesis 6.

4.6.4b. Responds to music

Although scores fluctuated in Activity One and the group work activities, all participants responded to the music fairly consistently and well throughout the four video-taped sessions. On two occasions the movements particularly complemented the music. For instance, children in the children's only class stayed in rhythm with the music as they squeezed and released the ball and child leaders of the frisbee group in the intergenerational class captured the liveliness of the music as they moved the frisbees side-to-side and up-and-down while stretching and bending their knees.

4 6 4c. Watches others

Journal notes indicated an increase in the ability of audience members to watch the performers. For instance, during a scarf dance on week 3, some children in both classes fidgeted and needed to be reminded to be a good audience, but from week 9 onwards, all the children and most of the adults watched each other perform and most children correctly guessed the movement ideas of the performers. At the midpoint of the dance program, when instructed to watch and say something special about each dancer, most participants in both groups watched, but some audience members did not offer comments. Nonetheless, the audience appeared focused, and in the intergenerational class the children in the audience provided specific comments including, "good moves", "nice melting", "good freezing" and "nice stretch". No seniors offered comments. In the children's only class, the most frequent remarks were that (1) the dancer was listening and following directions, (2) the dancer moved nicely, (3) the dancer was creative, and (4) the dancer moved well.

4 6.5. Sense of Belonging. Participate with partner, participate with group

In Activity One, most dancers increased participation on week 8. Specifically, most children participated most times each week and by week 8, all children participated; adults' participation increased in week 8 and on week 12. In group activities, children in both groups increased in scores from week 4 to week 8 and stayed with high scores on week 12; adults had high scores for weeks 8 and 12. These high

scores indicated that the sense of belonging was high for all dance participants

The journal notes indicated that in the first few weeks of the dance program some children and some adults refused to dance (e.g. on week 3 in the scarf dance, two children in the children's only class refused to join the groups to dance and on week 7 in the "pose/melt" activity, some children and some adults in the intergenerational class participated part of the time). However, from week 8 onwards, everyone participated in group activities, indicating everyone had developed a sense of belonging by the midpoint of the dance program.

4.6.6. Awareness of Others

Throughout the weeks, in Activity One and the group work, the awareness of others as evidenced by not bumping into each other was high for all children. Adults were not included as they remained seated and had no opportunity to bump into one another.

4.6.7. Extra Observations: General Effects of Music

At the beginning of the dance program I selected simple piano tunes and over time gradually included music that was more complex. It was observed that both the seniors and the children liked all the musical selections and enjoyed dancing to both live and taped music.

In general, the music had an impact on the class by creating a mood and stimulating particular movement responses depending on its melody and rhythm. Most of the time, the piano music was easy to follow and stimulated accurate responses by all the dancers. In particular, both children and adults responded well to the strong musical beat in the "heavy/light" creative dance exploration on week 5. Journal notes indicated that most students automatically responded well to the music but if students experienced problems following the rhythm, a reminder to listen to the music corrected the musical response. For instance, some children in the children's only class who were enacting "birds flying in the wind" initially experienced difficulty responding to the music but when reminded to listen to the music, they changed their movements to reflect its rhythm. However, there were times when the piano music was difficult to follow which provided challenges for both the pianist and myself. For instance, on one occasion, I found it impossible to lead the class through the rhythmic changes in a "freezing/melting" activity; however, the problem was solved when the pianist introduced pauses, thereby providing cues for all the participants to successfully follow the ebb and flow of the music. Sometimes, the pianist chose different musical selections for specific themes to which the participants responded very well. For instance, all participants enjoyed and were able to portray: (a) a limp Raggedy Ann or Raggedy Andy doll by dropping the torso and hanging the limbs, (b) buzzy bees by flickering the fingers, (c) leaves being tossed in the wind by swirling the arms and legs, and (d) flowers that opened in the wind by unfolding the torso to an upright sitting position. Over time, with more exposure to various beats, rhythms, and melodies, the children became adept at listening and then dancing to the music.

By week 7, the children had no difficulty expressively portraying the dynamic changes in the music even though no story lines or suggestions were given. The adults, however, were more responsive to concrete movement suggestions such as swaying in the breeze or riding on a horse in the fields.

4.7. Hypothesis 6: An Intergenerational Creative Dance Class will have a Greater Positive Effect on Children's Social Skills than a Creative Dance Class without Elderly Participants.

Similar to hypothesis 5, the video-taped lessons were used as a resource for recording observed changes in social skills and aided in determining whether an intergenerational creative dance class had a greater positive effect on children's social skills than a creative dance class without the elderly participants. Overall observations indicated that children in the intergenerational class demonstrated slightly better social skills than the children in the children's only class when following the structured, teacher directed movements found in Activity One, whereas few differences were observed in social skills between the two groups during the more independent interactive group activities on weeks 1, 4, 8, and 12. The reported averages in Table 13 and Table 14 indicate that the scores were quite high thereby demonstrating high levels of social skills. These findings suggest there is no support for hypothesis 6, that an intergenerational creative dance class will have a greater positive effect on children's social skills than a creative dance class without elderly

participants.

Nonetheless, some qualitative differences were detected in the children's behaviours in some of the categories reported in hypothesis 5. Observations from video-taped recordings and journal notes indicated differences between the two children's creative dance groups with respect to cooperation, following and leading others, and communication (following directions and watching others). No differences were noted for the remaining categories: communication (responding to music), sense of belonging, and awareness of others. The presence of differences (which tended to show more positive social interactions in the intergenerational class) suggests some social skills seemed to be more positively influenced by the presence of the elderly in the creative dance class. Each category describing behavioural differences between the children's groups is reported separately.

4.7.1 Cooperation: Cooperates with teacher / cooperates with dancers

Observations from video-taped lessons indicated that initially, in week 1, children in the intergenerational class seemed hesitant to pair up with the adults, and it took quite a few minutes to organize the matching of children and adults but the hesitation had disappeared by week 8 and groups were formed quickly. On the other hand, children in the children's only group showed no hesitation and formed their own groups very quickly throughout all the video-taped weeks.

However, journal notes indicated that during weeks 9 and 10 some children in the intergenerational class continued to demonstrate an initial reluctance to dance with a few of the adults who were particularly limited in their awareness and/or movement abilities but that this reluctance was gone by week 11. For instance, in week 9 after the children had raced to find adult partners, a few children looked disappointed when they did not reach their favourite adult first and reluctantly formed partnerships with the adults who were left. In week 10, some children needed a reminder to include adults during the planning of group movements. Once invited to contribute ideas, several adults became more interactive and shared ideas, but one adult, who was very physically and cognitively challenged, continued to be avoided by the children. When I mentioned how sad this adult looked, one of the little girls took her hand, and the adult began to smile. In contrast to the video-taped records, journal observations noted that some extremely exuberant children in the children's only class were reluctant to form partnerships or join a group from time to time during weeks when the camera was not present, but there appeared to be no particular pattern with respect to the times the children showed their reluctance. Finally, observations from video-taped lessons and journal notes indicated that despite the differences with respect to the initial reluctance or hesitation to dance with a particular partner or group, most children in both dance classes danced and cooperated when the music began.

4.7.2 Following. Follows partner / group leader

In group work, in week 1, the adults in the intergenerational class followed their child partners in the mirror activity; however, as none of the adults led, none of the children became followers. As the children's only group was somewhat noisy and inattentive, a spongy ball exercise replaced the mirror activity to enable the children to focus on a concrete, tangible focal point. Everyone had the opportunity to move with the ball, but no one led the group in the activity of squeezing a ball in time to the music and passing it on to their neighbour when instructed to do so. This well-defined structured activity captured and held the children's attention.

By week 4, all the children in both groups were ready and able to participate in the lead/follow activity whereby three groups were formed to dance with one of the three props: balls, frisbees, or scarves. It was observed that overall the children in the intergenerational class could follow their leaders more accurately and more often than the children in the children's only class. Specifically, in the ball group, all the children in the intergenerational class followed the designated leader, whereas most of the children in the children's only class had difficulty following the designated leader. In the frisbee group, most group members in the intergenerational group copied the leader's movements correctly, whereas most group members in the children's only group were unable to accurately reproduce any of the leader's movements, but were able to capture the rhythm and general features of the movements. In the scarf group, a few followers in the intergenerational class were

unable to correctly follow all the actions of their leaders, whereas most followers in the children's only class were unable to follow the actions of their leaders correctly, either adding or omitting movements

4.7.3. Leading: Able to lead a group

In the lead/follow activity in group work, the actions chosen by the leaders were diverse. Leaders of the ball group and frisbee group in the children's only class produced difficult and/or complex movement sequences, whereas the leaders of the ball group and frisbee group in the intergenerational class produced simple clear actions. On the other hand, some leaders of the scarf group in both classes chose simple movements; a few leaders in both classes chose complex movements.

4.7.4. Communication. Follows directions / watches other dancers

4.7.4a. Follows directions

Journal notes indicated that in the complex "museum-statue-poses" activity, the children in the children's only class needed a lot of guidance while performing in order to follow the directions correctly, whereas the children in the intergenerational class needed very little guidance in order to follow the directions correctly.

4 7 4b. Watches other dancers

Journal observations revealed that on week 4 when children took turns performing (with balls, frisbees, and scarves) and watching the performances, more children in the children only class watched the performances than children in the intergenerational group and most of the adults watched.

4 7 5 Additional Observations not Listed on the Coding Sheet

General observations of classroom behaviour and group interactions suggest the presence of the elderly may have had a positive effect on children's social skills. For instance, throughout the dance program, children in the intergenerational class showed an increase in quietness of behaviour, showed an increased concern, tolerance, and respect for the limitations of each other as well as the elderly, demonstrated an increasing willingness over the weeks to participate in group activities with the elderly, and displayed their affections (by freely distributing hugs to the seniors) during the last class. On the other hand, over the weeks, the children in the children's only class did not show an increase in quietness of behaviour, did not show an increased concern, tolerance, or respect for fellow classmates, did not show changes in willingness to participate in group activities with each other (the same children that had difficulty adapting to others in the room continued to experience the same difficulties), and none of the children displayed open affection for each other.

The "Bird Nest Dance" (in which children pretended to be baby birds that rocked in a nest, fell out, were blown by the wind to flowers, flew back to the nest, and snuggled down to sleep) provided an opportunity for children in the intergenerational class to develop concern, tolerance, and respect for the other dancers in their class. This was illustrated when they danced and acted out the story in a gentle, caring manner, "flying" to the seniors (who were the flowers) and waving "hello". As noted by the second coder:

"All the kids related well to each other, kept the mood and spirit (no none goofed off), were "genuine" and sustained the different feelings throughout, were together (arms touching, nestling, etc.) and were quite self-directed."

In contrast, the children in the children's only class expressively danced out the story with wild, spinning, running motions, enthusiastically flapping their arms. As noted by the second coder:

"This group of children was more exuberant and freewheeling in movement" and were "harder to settle in and snuggle quietly."

Finally, one activity warrants additional comments as it illustrated several facets of group interaction and nonverbal social skills when planning and performing group dance activities and marked the turning point for increased social interaction between the children and the adults. This first interactive group-planning activity, a dance concept word pair activity, was not introduced until week 8 and it was unknown whether the children and adults in the intergenerational class could or

would work together to create their own group dances. The children and adults were able to communicate and collaborate in order to produce a "performance" piece.

Overall, the children in the intergenerational group approached the tasks with more planning and enacted the activities more gently and carefully than the children in the children's only class.

Specifically, it was observed that upon encouragement, the adults and children in each subgroup found verbal, nonverbal, or a combination of both nonverbal/verbal ways to communicate, to practise, and to perform their ideas. If adults had difficulty understanding, the children would take the leadership role and physically guide the adults. However, most adults and most children were able to collaborate in their efforts when planning, practising, and performing their dance concept word pairs. For instance, in the "freeze/melt" activity, the performing group placed themselves in four tiny subgroups: one child held one adult's hands, one adult and one child danced without holding hands, one adult and two children danced without holding hands, and one adult held two children's hands. All the performers "melted" (bent their bodies downwards), then they straightened their bodies and everyone in each of the subgroups held hands and once again "melted". In the "push/pull" group, the boys (who were standing) hung onto the hands of their seated adult partners and everyone moved backward and forward in a gentle rocking motion. In the "heavy/light" activity, none of the children danced with the adults at first. However, part way through their dance, one child directed another child to dance with an adult and the rest of the children in the group simultaneously paired up with the rest of the

adults in their group. Apart from one child and one adult, no one held hands. Their dance consisted of the children moving their arms and torsos while standing in an upright position and the adults swaying their arms or simply watching quietly while sitting in their chairs. In the "scatter/gather" activity, the children stood closely in front of their adult group members. One adult initially needed a verbal reminder to move, then all the performers moved their hands and fingers in small, gentle "scattering/gathering" motions.

In comparison, most of the children in the children's only group communicated nonverbally through actions and movements and tended to perform spontaneously rather than have their movements planned. For instance, unlike their random haphazard practice, the boys in the "freeze/melt" group formed a circle, danced jerky, small moves in unison and slowly dropped downward until each one was lying on the floor in either a face up or face down spread-eagled position. In the "push/pull" group, the performers demonstrated tension as they pushed and pulled imaginary objects. They seemed to move as a slowly pulsating group, pulling and pushing in a random manner. In the "heavy/light" group, the dancers moved in upright postures, twirling and swaying their arms. In the "scatter/gather" group, the girls danced in a circle, moving their hands in small twirling, sweeping motions.

To summarize, it would appear that although social interaction was increasing for both groups, a social, caring, affectionate bond was forming between the seniors and the children through the medium of creative dance but no similar bond was found

between children in the children's only class. These findings imply that an intergenerational creative dance class may contribute positively to fostering certain social skills (i.e. care, concern, tolerance, and respect for differences in abilities and willingness to show open affection) that are not as easy to activate in a classroom of peers alone.

4.8. Hypothesis 7: There will be three Positive Relationships: (a) between Physical and Cognitive Skills, (b) between Physical and Affective Skills, (c) and between Physical and Social Skills

Similar to hypothesis 5 and hypothesis 6, due to technical problems not all participants were video-taped. Therefore, meaningful quantitative data were unavailable with which to perform the physical and social skills correlational analysis. However, data were available to investigate the relationship between physical and cognitive skills and the relationship between physical and affective skills.

4.8.1. Adults: Correlational Results

There was a significant positive correlation $r=0.6915$ at the 0.025 level of significance for a one-tailed test between Physical 2 Test difference scores and WAIS-R performance difference scores for the Nakusp dance participants. In other words, an improvement of performance WAIS-R difference scores correlated with

Physical 2 Test difference scores such that the bigger the difference in physical improvement, the bigger was the WAIS-R performance difference score.

Conversely, there was a nonsignificant negative correlation $r=-0.3088$ between Physical 2 Test difference scores and WAIS-R performance difference scores for the New Denver exercise participants. However, there was a significant positive correlation $r=0.6742$ at the 0.05 level of significance for a one-tailed test between Physical 2 Test difference scores and BDI difference scores (mid scores minus pre-scores) for New Denver exercise participants. In other words, the deterioration of physical skills correlated with increased depression. Specifically, the increase of Physical 2 Test difference scores and post-scores (which indicated that New Denver exercisers had decreased their physical abilities over time) correlated with the BDI difference scores (mid-scores minus pre-scores which showed that depression had increased). No other significant correlations were found for either the Nakusp dance participants nor the New Denver exercise participants.

4.8.2. Children: Correlational Results

No significant correlations were found for any of the dance or exercise groups with respect to physical and cognitive skills. Similarly, no significant correlations were found for any of the dance or exercise groups with respect to physical and affective skills.

4.9. Observational Issue 1: Examining Whether Creative Dance would Increase Dance Knowledge, specifically, that the Dance Participants would Learn more about (a) Moving Body Parts, (b) Locomotor Movements, (c) Body Alignment, and (d) their Spatial Environment at the end of the Dance Program compared to the Beginning of the Dance Program

In issue 1, it was observed whether creative dance exposure would increase dance knowledge. It was anticipated that increases in dance knowledge would occur; specifically that dance participants would learn more about: (a) moving body parts, (b) locomotor movements, (c) body alignment, and (d) their spatial environment at the end of the dance program compared to the beginning of the dance program. The results of these observations indicated that dance participants learned more about moving body parts and learned about their spatial environment when using props. Some support was found for creative dance increasing locomotor skills (i.e. jumping) and for creative dance increasing explorations of spatial environment without props but no support was found for creative dance increasing body alignment.

4.9a. Moving Body Parts

In issue 1(a), learning more about moving body parts would be demonstrated by an increase in the number of body parts that were moved and by an increase in the variety of movements of each moveable body part. All adults learned more about

moving body parts by demonstrating a gradual increase in the number of body parts they moved; however, such increases were not seen in the children because they consistently performed all the movements with me, the dance instructor. All dancers learned more about body parts by demonstrating an increase in the variety of movements they made near the end of the dance program when exploring stretching, swinging, twisting, shaking, poking, punching, dabbing, and slashing different body parts. Furthermore, all the dancers were better able to follow increasingly more complex rhythmic exercises whereby body parts were moved in various rhythmic patterns. Specifically, most participants in each of the dance groups progressed from being able to clap their hands on their knees, elbows, head, shoulders, etc. on the first week to responding correctly to strong rhythmic musical changes on the fifth and sixth weeks and exploring fairly complex rhythmic hand clapping and toe tapping patterns on the eighth week. It was also noted that many adults were performing circular motions more smoothly and, with the exception of their feet, were imitating the dance teacher in shaking, poking, punching, dabbing, and slashing most body parts. By the tenth week, the adults moved all the named body parts, including their feet. These observations suggest that dance knowledge was increased in adults as demonstrated by an increase in the number of body parts they moved and an increase in the variety of movements they made; dance knowledge was increased in children as demonstrated by an increase in the variety of movements they made. Specific changes for each group of participants are noted in Appendix 14.

4 9b Locomotor Movements

In issue 1(b), learning more about locomotor movements would be demonstrated by an increase in locomotor skills. For safety reasons (to prevent falls), no adults were required to perform locomotor skills in the dance program. Examination of the video-taped locomotor activities revealed that some children in the intergenerational class could not be seen (as the camera was sometimes panned on the adults who clapped their hands as they watched the children perform the locomotor skills). Nonetheless, all children improved in their jumping skills, all children in the children's only class improved their hopping skills, and all children in the intergenerational class improved their spinning skills and their performance of locomotor sequences. No change was noted in walking, running, skipping, and sliding skills for the children in both groups and no change was noted in the hopping skills for the children in the intergenerational class as these skills were correctly executed throughout the program. In both children's groups, no changes were seen in gallops as some children continued to skip instead of gallop, no changes were seen in star jumps as some children continued to forget to use their arms, and a slight deterioration was seen in leaps as fewer children were able to execute these skills correctly at the end of the dance program. In the children's only group, some children experienced problems in jumping by colliding with one another and a deterioration was seen in spins as fewer children could spin correctly at the end of the dance program. (See Table 15.)

Table 15

Demonstrated Knowledge of Creative Dance (Locomotor Skills)

a.) Video-Taped Observations of Locomotor Activities

	Tape 2 (week 4)		Tape 4 (week 12)	
	G1 n=16	G2 cn=16	G1 n=19	G2 cn=21
<hr/> LOCOMOTOR SKILLS <hr/>				
walk	3 00	3 00	3 00	3 00
jump	0 56	2 44	3 00	3 00
hop	2 25	3 00	3 00	3 00
gallop	N/A	N/A	N/A	2 43
leap	0 94	1 88	0 89	1 86
slide	N/A	N/A	3 00	3 00
spin	3 00	2 25	2 21	2 65 *

* 4 children were not seen so the number of children was only 17 for this observation

b.) Journal Observations of Locomotor Activities

<hr/> LOCOMOTOR SKILLS <hr/>	
walk	Everyone in both classes could walk correctly on weeks 1 and 12
run	Everyone in both classes could run correctly on week 9
skip	Everyone in both classes could skip correctly on week 7
hop	Everyone in both classes could hop correctly on weeks 1, 2, 7, and 9
slide	Everyone in both classes could slide correctly on week 9
jump	Everyone in both classes could jump correctly on weeks 2 and 7
star jump	Not everyone in both classes could star jump correctly on week 9
gallop	Not everyone in both classes could gallop correctly on week 7
leap	Not everyone in both classes could leap correctly on weeks 3 and 7
<hr/> Key	
G1 n =	group 1, children "n" (children's only class)
G2 cn =	group 2, children "n" (intergenerational class)

Thus, it would appear that with the exception of all the video-taped children improving their skills in jumping, the children in the children's only class improving their skills in hopping, and the children in the intergenerational class improving their

skills in spinning, there was a limited demonstration of an increase in creative dance knowledge with respect to performing single locomotor movements. However, it must be remembered that the locomotor skills of walking, running, skipping, and sliding were correctly executed for all the children and hopping was correctly executed for children in the intergenerational class from their first exposure in the dance class so there was a ceiling effect. (See Table 16.)

Table 16

Demonstrated Knowledge of Creative Dance

Activity Two

<u>Follow Instructor</u>			<u>Rise/Fall</u>			<u>Painting</u>			<u>Birds/Streamers</u>		
Tape 1 (week 1)			Tape 2 (week 4)			Tape 3 (week 8)			Tape 4 (week 12)		
G1	G2	An	G1	G2	An	G1	G2	An	G1	G2	An
n=18	cn=20	An=13	n=16	cn=16	An=9	n=19	cn=21	An=11	n=19	cn=21	An=14

NONLOCOMOTOR SKILLS

bend	N/A	N/A	N/A	1 00	0 00	0 00	0 00	0 00	0 00	1 00	1 00	0 00
stretch	2 33	3 00	0 54	1 00	2 00	0 70	1 00	1 00	0 91	1 00	1 00	1 00
turn (twirl)	N/A	N/A	N/A	0 44	0 00	0 00	0 00	0 00	0 00	1 00	1 00	0 00
twist	N/A	3 00	0 23	0 44	2 00	0 70	0 00	0 00	0 00	0 00	0 00	0 00
swing	3 00	3 00	3 00	1 00	0 00	0 00	0 00	0 00	0 00	1 00	1 00	2 00
stop	3 00	3 00	3 00	1 00	1 00	1 00	0 00	0 00	0 00	1 00	1 00	0 00
Mean score	1 39	2 00	1 30	0 65	0 50	0 28	0 17	0 17	0 15	0 83	0 83	0 50

SPATIAL AWARENESS**RANGE-SIZE**

Large movements	3 00	3 00	1 15	2 00	2 00	0 70	0 68	1 00	0 18	2 00	1 00	1 00
small movements	3 00	3 00	1 15	1 00	3 00	1 00	2 00	2 00	2 09	1 00	2 00	2 00

DIRECTIONALITY**front**

arms/hands	N/A	N/A	N/A	0 31	0 00	0 00	2 00	2 00	0 90	3 00	3 00	3 00
legs/feet	N/A	N/A	N/A	0 06	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
elbows	N/A	N/A	N/A	0 44	0 00	0 00	0 00	0 00	0 00	1 00	1 00	0 00

back

arms/hands	N/A	N/A	N/A	0 31	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
legs/feet	N/A	N/A	N/A	0 19	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
elbows	N/A	N/A	N/A	1 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00

sides

arms/hands	3 00	3 00	1 15	1 00	0 00	0 00	1 00	1 00	0 91	2 00	2 00	2 00
legs/feet	N/A	N/A	N/A	0 19	0 00	0 00	0 00	0 00	0 91	0 00	0 00	0 00

up

arms/hands	3 00	3 00	1 54	1 88	3 00	0 70	2 00	2 00	1 81	2 00	2 00	3 00
legs/feet	3 00	3 00	0 77	0 25	0 00	0 00	2 10	3 00	0 00	2 00	2 00	0 00
elbows	N/A	N/A	N/A	0 00	0 00	0 00	0 00	0 00	0 00	1 00	1 00	1 00
head	N/A	N/A	N/A	0 00	0 00	0 00	0 00	0 00	0 00	1 00	1 00	0 00

down

arms/hands	3 00	3 00	3 00	1 88	3 00	0 70	2 00	2 00	1 82	2 00	2 00	3 00
legs/feet	3 00	3 00	0 77	0 25	0 00	0 00	0 89	0 00	0 00	0 00	0 00	0 00
elbows	N/A	N/A	N/A	0 00	0 00	0 00	0 00	0 00	0 00	1 00	1 00	1 00
head	N/A	N/A	N/A	0 00	0 00	0 00	0 00	0 00	0 00	1 00	1 00	0 00

circle

arms/hands	2 83	N/A	N/A	0 00	0 00	0 00	1 00	1 00	0 91	1 00	1 00	1 00
legs/feet	3 00	N/A	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
body	0 00	N/A	0 00	0 44	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00

Mean score	1 49	1 17	0 51	0 82	0 61	0 17	0 76	0 77	0 48	1 11	1 11	0 94
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Apart from the gradual improvement displayed by the children in the intergenerational class, there was a limited demonstration of an increase in creative dance knowledge with respect to performing locomotor sequences. Specifically, when performing several locomotor skills in a sequence, children in the children's only class tended to be more restless, were less able to correctly execute a sequence of locomotor skills, and needed more verbal reminders of the locomotor skills than the children in the intergenerational class. (For more details, see Appendix 14).

4.9c) Body Alignment

An increase in dance knowledge could be demonstrated by an increased awareness of body alignment. Due to the cognitive limitations of some participants, I decided that a demonstration with minimal verbal explanations of the appropriate actions to bring the body into alignment would be more effective than a lengthy verbal explanation and demonstration of the concept. I discovered that by combining a hand gesture sweeping up over the midline of the torso and chin while breathing in and brushing the hand down over the midline of the torso while breathing out automatically coincided with my own postural adjustments to bring my body into alignment. On all occasions, the students in all groups followed my actions, automatically adjusting their postures to match mine. However, apart from copying my movements, no self-initiated changes, improvements, or adjustments of body alignment were observed during the dance lessons by any of the dance participants.

thereby suggesting that there may not have been an increased awareness in dance knowledge with respect to body alignment at the end of the dance program compared to the beginning of the dance program.

4 9d. Spatial Environment

To encourage an increase of knowledge in spatial environment, participants were requested to explore nonlocomotor movements as well as the directionality, range, and size of movements. Over the four video-taped sessions, it was observed that most participants experienced the nonlocomotor skills of bending, stretching, turning, twirling, twisting, spinning, and swinging. In general, nonlocomotor movements were explored most often when participants followed my movements on week 1 and followed my motions with streamers - pipe cleaners with pink and green plastic strips - on week 12. Dancing like birds produced the most self-explorations of nonlocomotor movements in children. Rising and falling generated the most self-explorations of nonlocomotor movements in adults. The painting activity (which only promoted stretching) produced the least amount of nonlocomotor self-explorations for all participants.

With respect to directionality, range, and size of movements, spatial awareness (range/size and directionality), the pattern for the children's only class was a decrease in explorations on weeks 4 and 8 and an increase in explorations on week 12. The pattern for both children and adults in the intergenerational class was a

decrease in explorations on week 4 and an increase in explorations on weeks 8 and 12. Children in both groups produced the same average score on week 12. Similar to the findings for nonlocomotor skills for children, spatial explorations were highest when they followed my movements and self-explorations were highest on week 12. For adults, spatial explorations were highest when they followed my movement (on week 1 and 12) and self-explorations were highest on week 8.

Overall, these observations indicated that the children and adults could demonstrate some self-knowledge of nonlocomotor skills and the directionality, range, and size of movements when following me and showed the highest level of self-knowledge on week 12. (See Table 16.) It was also observed that most members in each dancing group tended to demonstrate an improvement in their dance knowledge: (a) by increasingly discovering movements without prompting from the dance instructor, (b) by increasing their variety of expressed movement qualities, and (c) by increasing their willingness to try new ideas near the end of the dance program compared to the beginning of the dance program. All of these observations suggested that dance participants had experienced an increase in dance knowledge with respect to learning more about their spatial environment at the end of the dance program compared to the beginning of the dance program.

To encourage an increase of knowledge in the spatial environment, participants were also asked to dance: (1) with big and small movements and in high and low spaces, (2) close together and far apart from other dancers, and (3) in various directions and

pathways in space. Overall, the observations from journal notes of "big/small", "high/low", "close/far", and "directions/pathways" explorations provided partial support that there was an increase in dance knowledge by learning more about the spatial environment at the end of the program compared to the beginning of the dance program. Specifically, all participants showed an increase in knowledge for "big/small" movements and an increase in knowledge in directions and pathways when using props. All the children in both classes demonstrated an increase in "high/low" spatial levels by dancing in both levels at some point in the program. Some children and adults explored directions and pathways through imagery, hand-drawn movement patterns, and explorations of "smooth/jerky" movements. As the "close/far" activity was not repeated for safety reasons (i.e. to avoid possible injuries) the opportunity to record possible improvements in this movement concept was eliminated. As some differences between groups were observed with respect to spatial explorations, each spatial concept and the participants' responses are separately reported in Appendix 14.

4.9 1. Summary of Issue 1 Observations

To summarize all the observations from issue 1, it can be concluded that:

- 1.) creative dance exposure increased some dance knowledge in all dance participants with respect to learning more about body parts (by increasing the variety of body part movements) and learning more about spatial environment (by increasing the explorations of "big/small" movement explorations and by increasing the

exploration of directions/pathways with the use of props);

2.) creative dance exposure increased some dance knowledge in all children with respect to learning more about locomotor movements by increasing their jumping skill;

3.) creative dance exposure increased some dance knowledge in all adults with respect to increasing the number of body movements that were moved.

There was limited support that creative dance exposure increased dance knowledge with respect to.

a.) the correct execution of locomotor movements (as only the children in the children's only class increased in hopping skills and only the children in the intergenerational class increased in spinning and executing locomotor sequences).

b.) increasing nonlocomotor body actions (as most, but not all, participants increased their self-explorations of bending, stretching, turning, twisting, spinning and swinging), and

c.) increasing explorations of directions and pathways without props (as only the children in the children's only class increased in spatial level explorations and only some children in both classes and some adults increased explorations through the use of imagery, hand-drawn movement patterns, and smooth/jerky movement patterns)

Lastly, there was no support for creative dance increasing dance knowledge with respect to learning more about body alignment for any of the dance groups as none

of the dance participants improved or adjusted their own body alignment in the 12-week dance program.

4.10. Observational Issue 2: Examining Whether Free Flowing Movements and Pantomime with the Dance Teacher would (a) Encourage the Expression of Feelings Through Movement, (b) Increase Nonverbal Communication, and (c) Increase Memory for Movement Sequences or Patterns

It was hypothesized that free flowing movements and pantomime would (a) encourage the expression of feelings through movement, (b) increase nonverbal communication, and (c) increase memory for movement sequences and patterns (with respect to demonstrating an ability to repeat movement sequences and patterns). Parts (a) to (c) of observational issue 2 were assessed by examining the video-taped dance classes and journal records.

4.10.1. Issue 2 (a): Free Flowing Movements and Pantomime would Encourage the Expression of Feelings through Movement.

It appeared that emotional expressions were affected by both the free flowing dance and by enacting stories through pantomime and dance. Interestingly, the adults tended to show facial emotional expression more easily without a story line and music but the children were more expressive in both facial expressions and body

movement when there was a story line and music. For instance, adults easily demonstrated facial expressions of the emotions, "happy", "sad", "angry", "scared", "excited", and "disgusted" when there was no story line and no music, but the children's facial expressions were quite reserved. On the other hand, the adults had difficulty responding to music and enacting "surprised", "scared", "feeling brave" and "feeling confident" in the story of creeping through jungle vines, whereas the children's actions corresponded to the ever increasing energy of the story and music until their movements and vocalizations flowed out in wild, boisterous abandonment. Overall, the members of the intergenerational group performed more quietly and gently than the members of the children's only group.

4.10.2. Issue 2 (b). Free Flowing Movements and Pantomime would Increase Nonverbal Communication

Although free flowing movements and pantomime activities increased some nonverbal communication in children, not much change was seen in adults. Interestingly, before such free flowing movements and pantomime activities were introduced, several activities which were not specifically planned to increase nonverbal communication (i.e. mirror dancing, partner dancing, locomotor activities, and bubble blowing) stimulated spontaneous nonverbal expressions such as increased smiles in some participants. Similarly, common nonverbal skills were triggered as the dance classes ended. Both categories of planned and spontaneous activities are reported.

4.10.2i. Planned Activities to Stimulate an Increase in Nonverbal Communication Skills

To encourage nonverbal communication skills, the activities of (a) expressing and interpreting specific dance concepts and (b) enacting and interpreting specific pantomimes were introduced. Each activity required some dancers to perform while other dancers watched and tried to identify the actions; each activity stimulated an increase in sending nonverbal communication by most children and adults and stimulated an increase in interpreting nonverbal communication by children.

Specifically, observing dancers' expressions and interpretations of "push/pull", "scatter/gather", "heavy/light", "freeze/melt", "high/low" and "side-to-side" dance concepts indicated that the adults displayed a limited growth in performing nonverbal communication skills by increasing their involvement in the performances, but they displayed no growth in interpreting nonverbal actions because no adult audience members guessed the dance concepts. On the other hand, the children demonstrated an improvement in both displaying and interpreting nonverbal skills by progressively performing their actions more clearly and increasing the number of times they correctly guessed the dance concepts.

With the passage of time, enacting and interpreting pantomimes became more complex, requiring a clarity of action and an ability to understand and remember several instructions. Most of the children in both classes were able to follow the

instructions, enact their pantomimes, and interpret the mimes they were watching; the adults were able to enact some of the less complex mimes but did not offer verbal feedback or interpret any of the performances they watched. For instance, the adults and children enacted ideas such as birds flying in the wind, seaweed swaying in the ocean, cowboys/cowgirls lassoing a calf, and astronauts floating in space. Watching these mimes, the adults offered no verbal feedback. However, the child audience members in both the intergenerational class and the children's only class correctly guessed most of the mimes immediately. The children had some initial difficulty guessing the astronaut mime, until the dancers mimed more actions including putting on a helmet, strapping down the seat belt, looking out of the window, and getting out of the spacecraft.

Some mime activities were too difficult for either active or passive participation by the adults. For instance, the magic stick activity, which required the performer to turn an imaginary stick into an object and mime an action with it or to pass the stick to another performer without enacting an idea, had components that were too challenging for most adults. Specifically, the activity took a long time to complete and required the ability to concentrate, to see, to generate movement ideas, to decipher nonverbal actions, and to perform by themselves; therefore, this activity was not done in the presence of the adults. Although five children in the children's only class and two children in the intergenerational class opted to pass the magic stick without changing it into an object, most of the children in the children's only group mimed simple large actions such as skating or driving a car and most of the

children in the intergenerational dance group mimed more complex ideas such as golfing, playing baseball, chewing gum and popping it, skipping a rope, cuddling a kitten, and fighting a grizzly bear. Most of the children in both classes watched intently, took turns guessing the actions of others, and tried to accurately perform their own actions. This could be interpreted as demonstrating a growth in their ability to concentrate and their ability to receive and project nonverbal actions.

Other mime activities were challenging for both the children and adults and required continuous verbal and nonverbal cues in order for the participants to complete the tasks. For instance, the partner kite flying pantomime (where one partner was the kite and the other partner was the flyer) included the adults and required the nonverbal communication skills of observing and responding to the actions of the kite flyer. It became apparent that this activity was very difficult for most of the participants because many of the child "kites" forgot to observe the child or adult-child partner kite flyers and therefore did not correctly respond to the kite flyer's actions of letting out the string, pulling in the string, moving the string from side-to-side, or moving the string up-and-down. The children had to guide most of the adults to be kite flyers and with practice, many children in both classes and a few adults began to correctly respond to my ongoing verbal and nonverbal cues.

4.10.2ii. Activities Spontaneously Inducing Nonverbal Communication

In the intergenerational group, a mirroring and a "hello/good-bye" dance which required children to wave, shake hands, and swing from side-to-side stimulated spontaneous nonverbal communication by the adults, evidenced by the increased number of smiles. Over time, when partnered with the children in other activities, the adults harmonized their actions with the children's movements, thereby nonverbally supporting the children in their leadership roles. During the locomotor skills activities on weeks 7, 9, and 12, the adults spontaneously clapped and smiled after the children had performed their skills thereby communicating a nonverbal appreciation of their efforts. Bubble blowing produced gentle playful interactions between the children and the adults. Finally, at the end of each class, common nonverbal communication was expressed when all adults and some children said good-bye through hand-shakes, hugs, or waves.

4.10.2iii. Summary of Issue 2 (b)

It appeared that the adults spontaneously understood, relied on, and responded with nonverbal communication by encouraging the children's endeavours with clapping and smiling to a greater extent than the children. However, it is unclear whether exposure to planned activities using free flowing movements and pantomime increased nonverbal communication skills in children and adults. Certainly, as the weeks unfolded, the actions of the children were executed with greater clarity and

the children steadily became more observant when asked to interpret each other's actions, implying that they were increasing their ability to transmit and receive nonverbal information. However, no change was seen in the adults with respect to an increase or decrease of nonverbal communication skills when participating in planned creative dance activities.

4.10.3. Issue 2 (c) Free Flowing Movements and Pantomime would Increase Memory for Movement Sequences and Patterns.

Free flowing and pantomimed dances with props revealed that children in the intergenerational class demonstrated an increase in memory by needing less coaching over time, children in the children's only class did not demonstrate an increase in memory, and needed continual coaching, and adults did not demonstrate an increase in memory as they copied the children's movements and did not initiate any of the movements. Free flowing dances with scarves tended to inspire children in the children's only class to perform improvised movements that harmonized with the scarf actions, whereas free flowing dances with scarves tended to stimulate children in the intergenerational class to perform choreographed movement sequences that they could reproduce accurately. Dances with balls and hoops tended to be more chaotic for all groups but produced playful, joyous interactions between the participants. Some adults became noticeably animated when the brightly coloured balls were introduced, especially one adult who stopped staring blankly and began to move enthusiastically when given a bright yellow ball. As

reported by the second coder: "Although confusing to watch at moments, everyone participated. A lot of busy, buzzy energy was generated that touched the adults." On the second exposure to the ball dance, children in the intergenerational class remembered the dance sequence but children in the children's only class exaggerated their movements, acted silly, and needed constant coaching. With the hoop dance, once instructed to move carefully so adults would not get hurt, children in the intergenerational class danced with gentleness and guided the adults through the sequence and needed little coaching from the dance instructor. Children in the children's only class followed the coaching but did not demonstrate an ability to repeat the sequence without guidance. A more detailed description of responses to different props is reported in Appendix 14.

In conclusion, as the adults in the intergenerational class tended to follow the children rather than initiate the movements in the various dances, it is not clear whether the adults experienced an increase in memory for movement patterns and sequences. However, it is apparent that the children in the intergenerational class experienced an increase in memory for movement patterns and sequences because they tended to perform the free flowing movements they had rehearsed in practice and they needed little guidance or verbal reminders on their second exposure to the various prop dances. In contrast, the children in the children's only class showed no improvements in memory retention for movement sequences in the free flowing dance because they improvised their movements in rehearsal and performance and they needed as much coaching on their second exposure to the prop dances as they

had on their first exposure to the prop dances

4.10.4. Summary of Issue 2 Observations

To summarize Issue 2 a, b, and c, it can be concluded there was limited support for the idea that free flowing movements and pantomime encouraged the expression of feelings through movement, increased nonverbal communication, and increased memory for movement sequences and patterns. Specifically, there was support for the idea that the expression of feelings was encouraged through movement because all participants in all classes expressed feelings through free flowing movements and pantomimes. However, with respect to nonverbal communication, most children and a few adults demonstrated an increase in their ability to transmit nonverbal skills and most children, but none of the adults, demonstrated an increase in the ability to interpret nonverbal skills through planned activities. Finally, an increased memory for movement sequences and patterns in free flowing and pantomimed dances was demonstrated only by children in the intergenerational class.

4.11. Observational Issue 3: Examining Whether Listening and Responding to Music will Enhance Self-expression and Creativity

Assessing student response to music through video-taped recordings and journal notes, it was found that for most dancers music sometimes enhanced self-

expression (through exploration and discovery) and the selecting and combining components of creativity. At no time did any of the students demonstrate the creative process of sequencing, namely, the ability to connect various creative dance explorations together into a repeatable arrangement. The combination of music and imagery seemed more effective in stimulating self-expression and creativity than music without imagery. Specifically, music enhanced self-expression and creativity in the "dance/freeze/melt" activity on the first exposures to the concept for most of the children and on the last exposure to the concept for several adults, in the "heavy/light" activities for all dancers, and in the "bend/twist" and streamer dance for most children in the children's only class. The music did not inspire creativity for "big/small" moves as the movements tended to be repetitive and did not always flow with the musical dynamics. Furthermore, the children tended to stay in one of the three spatial levels; namely, the low, middle or high spatial level. Music with imagery produced more varied creative responses than music without imagery for "rise/sink" and "swing" activities for all participants and stimulated self-expression in the "scatter/gather" and painting activities for most participants. Finally, in the streamer dance and the "dance/freeze/melt" activities, the children in the children's only class were more expressive and explored more movement possibilities than the participants in the intergenerational class. Specific observations in each category are in Appendix 14

4.12. Program Evaluation

Program evaluation was done for formative reasons. In other words, in order to gain feedback regarding the participants' perceptions of the creative dance program and to help determine whether the program needed to be changed, program evaluation forms were given to the dance participants and to the teachers and nursing staff. In order to determine participant perceptions of the first half of the creative dance program and in order to assess and implement changes based on participants' reports, program evaluation forms were given midway as well as at the end of the program. Responsiveness to learners' needs was demonstrated by making adjustments based on student comments in the evaluation forms. Anecdotal comments from teachers and staff provided additional insight or supported my observations. General statements about staff and majority held perceptions of the creative dance class as well as the changes or maintenance of activities in the dance lesson plans in response to student comments are discussed below.

4.12.1. Children: Intergenerational Class and Children's Only Class

Evaluations

In the intergenerational class, most children reported positive experiences on the questionnaires at the midpoint and at the end of the program. For instance, the majority (85%) of children reported that they felt better after joining in the dance and believed that the exercises helped them move better. They reported that dancing

made them feel less tired, less sad, less tense, and more happy and it was easier to jump, run, leap, spin, slide, skip, and hop. The majority (85%) of children reported they could pay attention better and that it was fun to dance with the children and the adults in the class. Midway through the program, most (80%) of the children reported they danced or exercised at home and that they made new friends in the dance class; by the end of the program half of the children reported that they danced or exercised at home and that they had made new friends. When asked what part of the dance they enjoyed the most, the favourite activities were dancing with seniors, performing locomotor skills, and dancing with props. (See Appendix 14 for more details.)

Based on the childrens' desire midway through the program to dance with the adults, to learn more locomotor skills, and to dance with props, the creative dance lessons continued to incorporate these activities.

About half (68%) of the children in the children's only class reported positive experiences at the midpoint and at the end of the dance program. For instance, they reported that they felt better after joining in the dance (63%), that they felt less tense (57%), that the exercises helped them move better (63%), that they danced or exercised at home (53%), and that they made new friends in the class (58%). Most (75%) of the children reported feeling more happy (68%) and less sad (84%), and that it was fun to dance with the children in the class (74%). Midway through the program, most (75%) of the children reported it was easier to jump, run, leap, spin,

and hop. at the end of the program most (79%) of the children reported that it was easier to perform all the locomotor activities. Activities they enjoyed the most included miming, locomotor activities, and dancing with props. (See Appendix 14 for more details)

Based on the childrens' responses that their favourite activities were miming, locomotor activities, and dancing with props, these activities continued to be included in the creative dance program. Midway through the program about half (60%) of the children reported they were more tired and about half (60%) of the children reported they could not pay attention better. In order to enhance their ability to pay attention and to not become as tired at the end of the class, the dance classes continued to provide times to watch and comment on each other's performances. At the end of the dance program, most (about 74%) of the children reported they could pay attention better, but about half (47%) of the children still reported feeling tired at the end of the dance program.

4 12 2. Intergenerational Class: Adult Participants' Evaluation

Midway through the program and at the end of the program, some of the adults (mid 67% / post 47%) reported they danced or exercised on their own and that participating in the creative dance classes made them feel better (mid 67% / post 87%) and move better (mid 73% / post 87%). Specifically, most adults reported that the dance sessions made them feel less lonely (80%), less tense (mid 67% / post

87%), more enthusiastic (67%), and more cheerful (93%), and that it was easier to relax (mid 87% / post 80%) and breathe deeply (mid 73% / post 93%). Although a few adults (33%) reported feeling more optimistic, less anxious, and less tired, about half (53%) of the adults felt there was no change in their optimism, anxiety and/or tiredness. At the midpoint and the end of the program, some adults did not understand the term "self-assured" but once the term was explained, about half (mid 47% / post 40%) of the adults reported that they were more self-assured. Midway and at the end of the program, one third of the adults reported feeling less confused, about half (47%) of the adults reported that their concentration had improved, and few (mid 28% / post 31%) of the adults reported that it was easier to sleep, bend, stand on their feet, walk, or sit. Midway through the program, no adults reported that it was easier to write; at the end of the program a few (20%) of the adults reported that it was easier to write. There were no reported decreases in any of the physical skills.

There was a reported decline in stair climbing at the end of the program. However, unlike the self-reports at the midpoint of the program, many adults pointed out at the end of the program that there was no opportunity to climb stairs as there were no stairs to climb at Halcyon Home and they seldom had left the premises during the months of the program.

All adults reported that it was fun to dance with the children and most (80%) of the adults reported that it was fun to dance with the other adults. About half (53%) of the

adults reported making new friends in the class. Favourite activities included free movement, dancing, the music, meeting people, dancing with the children, and dancing with the scarves, streamers, balls, and hoops. (See Appendix 14 for more details.)

Based on the comments from the seniors at the midpoint of the program, the creative dance continued to include opportunities for adults to watch and participate and breathing exercises were included in every class. In order to decrease confusion, the order of activities was consistent from week to week, beginning with warm up exercises, moving into creative dance explorations, and ending with cool-down/relaxation exercises; however, no changes in confusion were reported at the end of the program. Watching and commenting on performance pieces were encouraged to increase concentration; however, no changes in concentration were reported at the end of the program. Due to the continued physical frailty of the adults, no changes were made in the dance lessons with respect to dancing while seated in chairs.

4.12.3. School Teachers' Evaluations: Intergenerational Class and Children's Only Class

Additional insight was given by the school teacher of the children in the intergenerational class when she reported on the evaluation forms that most of the children looked forward to the dance sessions and that positive changes in behaviour

were seen after dance classes. Specifically, during the regular school day, the teacher reported that midway through the program, all the children showed physical improvements in flexibility, mobility, and coordination; and at the end of the program, the majority (88%) of the children showed an improvement in flexibility, mobility, and coordination. At the midpoint and at the end of the program, improvements were noted in posture in most (mid 80% / post 75%) of the children during the regular school day. With respect to affect, at the midpoint of the program, the teacher noted that an improvement in self-image had occurred in all children which was maintained throughout the duration of the program; at the midpoint and at the end of the program there was an alleviation of anxiety in most (mid 95% / post 85%) of the children. No alleviation of attention demands was reported midway through the program but at the end of the program the teacher reported an alleviation of attention demands (expressed by fewer student demonstrations to obtain the attention of the teacher) by about half (55%) of the children. An improvement in memory, concentration, and alertness was noted in a few (27%) of the children at the midpoint of the program; an improvement in memory, concentration, and alertness was noted in many (68%) of the children at the end of the program. Socially, by the midpoint of the program, all the children demonstrated an improvement in attitude towards other children in their class and this improved attitude was maintained throughout the duration of the program. At the midpoint of the program, none of the children had improved in their attitudes towards her and the seniors but by the end of the program many (73%) of the children had shown improvements in attitudes toward her and the seniors.

General comments which supported my observations of the children included that several children were very gentle with the seniors and/or related well to them, showed an increase in comfort around the seniors, enjoyed dancing, had grown in confidence and self-assurance, were "willing to try new things", and had demonstrated imaginative dancing.

The teacher of the children in the children's only class reported that positive changes after dance class were not seen for any of the children. At the end of the dance sessions, she reported that there was an increase in the number of children (from 47% to 95%) looking forward to the dance classes.

Although no physical, affective, and social changes that were listed on the program evaluation sheet were noted, midway through the program the teacher of the children's only class supplied additional comments which supported my observations. Specifically, some children enjoyed and/or were interested in the dancing, participated well on their own but not in groups, and sometimes "acted silly". One child exhibited wild, uncontrollable behaviour and some children participated well in everything. At the end of the program, positive changes in group or partner participation occurred for most of the children confirming my observations that many children displayed good participation and a willingness to work in groups, had grown in the ability to watch and to independently follow a leader. However, some children, although participating well independently, continued to have difficulty forming partnerships or working in groups and one child remained distracted and

disinterested, was often rude, and had difficulty forming partnerships and working in groups. Some children occasionally "acted silly" and showed distractibility, but other children developed a good self-concept, displayed cooperation, demonstrated a quickness to form alliances, and danced creatively.

4.12.4. Nursing Staff Evaluation of Adults in the Intergenerational Class

Staff evaluation forms indicated that the initial condition of the residents in the dance program was as follows: six adults were alert and/or oriented (of these six adults, one adult used a walker, one adult used crutches, one adult had pain due to arthritis, one adult had a lot of (undefined) pain, one adult was social, and one adult sometimes had an unreliable short term memory), four adults were forgetful or had poor short term memories (of these four adults, two adults were in good physical condition, one adult used a walker and was social, and one adult "had a limited ability to walk"), two adults required continuous oxygen, one adult was confused but mobile and was "a wanderer", one adult had a fluctuating mental state and slept most of the day, and one adult was depressed and had various physical discomforts. These comments confirmed my observation of most adults being physically frail and/or cognitively challenged.

Nurses provided insight by reporting on adult participation and observed changes in physical, affective, and social categories. Midway through the program, Nurse 1 reported that most (87%) of the adults looked forward to the class. At the end of the

program Nurse 2 reported that many (67%) of the adults looked forward to the class.

Positive changes were noted in half of the participants at the midpoint and end of the program. In the physical category, improved postures and flexibility by a few (13%) of the adults were noted but no improvements in appetite, sleeping habits, bladder control, mobility, or co-ordination were reported. In the affective category, Nurse 1 noted an alleviation of attention demands, an improvement of self-image, and improvement of alertness in a few (16%) of the adults midway through the program. At the end of the program, Nurse 2 reported an alleviation of anxiety symptoms in one adult and attention demands in one adult, whereas Nurse 3 reported an alleviation of anxiety symptoms in a few (13%) different adults as well as improvements of self-image and alertness in a few (10%) of the adults. No improvements of memory or concentration in any of the adults were noted by the nurses. In the social category, an improvement in attitude towards staff and towards other residents was reported for a few (13%) of the adults but no improvement in attitude towards family members by any adults was noted by the nurses.

Additional comments by the nurses confirmed my observations. Specifically, overall participation in the dance class had increased and there were more interactions between the children and the adults near the end of the dance program. Most (67%) of the adults enjoyed the activities (especially the social interactions) but a few (33%) of these adults had memory problems so could not remember the activities afterwards. Several (27%) of the adults appeared happier after class but did not

always wish to participate due to pain

4.13. Summary of Empirical Results and Field Observations

The following table summarizes the highlights of the empirical results and field observations in the physical, cognitive, affective, and social domains. A brief summary of program evaluation highlights is also included. (See Table 17.)

Table 17
Summary of Empirical Results and Field Observations

	Children			Adults	
	Burton (PE)	Nakusp (children dance)	Nakusp (children/adult dance)	Nakusp (dance)	New Denver (exercise)
EMPIRICAL RESULTS (* = statistically significant findings)					
Physical: BO Test	increase*	increase*	increase*	-	-
Physical Test 1	-	-	-	same	same
Physical Test 2	-	-	-	increase*	decrease
Cognitive:					
WISC-R/WAIS-R	increase*	increase*	increase*	same	same
Affective: Faces Scale	same	same	same	-	-
Cratty Self-Concept	same	same	same	-	-
Positive Emotions	-	-	-	increase*	increase
Negative Emotions	-	-	-	decrease*	same
Semantic Differentiat					
(a) relaxed	-	-	-	increase*	same
(b) good	-	-	-	increase	same
BDI (depression)	-	-	-	decrease	same
FIELD OBSERVATIONS					
Social Skills					
cooperation	-	high scores	high scores	high scores	-
follow directions	-	high scores	high scores	high scores	-
responds to music	-	high scores	high scores	high scores	-
awareness of others	-	high scores	high scores	-	-
leading	-	high scores	high scores	low scores	-
following	-	high scores	high scores	high scores	-
Issue 1					
a) Move Body Parts	-	increase	increase	increase	-
b) Locomotor skills	-	jump, hop	jump, spin	-	-
c) Body Alignment	-	same	same	same	-
d) Spatial Environment	-	size/pathways	size/pathways	size/pathways	-
Issue 2					
(a) Express Feelings	-	increase	increase	increase	-
(b) NV Communication	-	increase	increase	same	-
(c) Memory (movement)	-	same	increase	same	-
Issue 3					
(a) Self-expression	-	increase	increase	increase	-
(b) Creativity (select)	-	increase	increase	increase	-
Creativity (combine)	-	increase	increase	increase	-
Creativity (sequence)	-	none seen	none seen	none seen	-
Program Evaluation (highlights)					
Children report	-	happy	happy	-	-
Teachers report	-	cooperation	transfer to class	-	-
Adults report	-	-	-	happy, relaxed	-
Nurses report	-	-	-	happy, relaxed	-

4.14. Observational Section: Additional Themes

The classification of information gathered in the field notes (journal entries) and video-tapes revealed several additional themes. These themes were: (1) pedagogical issues, (2) reactions to breathing/relaxation exercises, (3) attitude towards the dance experience, (4) participants' behaviours directly before dance classes, and (5) participants' behaviours directly after dance classes. Each theme is discussed below.

4.14.1. Pedagogical Issues

While teaching the dance class, various pedagogical issues evolved which affected the behaviour of the students and, presumably, the results of this study. These pedagogical issues included: (a) the pace of the class, (b) capturing and maintaining the attention of students, (c) the use of bubbles as a teaching tool, (d) modelling, (e) responding to the dancers' special needs, (f) tolerating differences, (g) challenging abilities: testing students' limits, and (j) maintaining a positive environment: positive reinforcement and discipline issues. Each theme and teaching technique and their effects is reported separately.

4.14.1a. Pace of the Class

On the first week, the pacing of the class was too fast for the adults in the

intergenerational class and the content was not very challenging for the children in both classes. To maintain consistency between groups, I slowed the pace of the lesson, repeated the presentation of ideas, and expanded the movement ideas so that both the children and the adults were equally challenged. By the fourth week, the ideal pacing for the intergenerational class required alternating activities such that everyone would participate, then the children would perform and the adults would watch (and rest), then everyone would participate again, etc. Thus, adults did not get overstimulated physically and all the children were continually active and challenged throughout the lesson. As the dancers became familiar with the basic movement concepts, both the pace and the complexity of movement ideas were slowly increased. By the tenth week onwards, most of the adults could keep pace with quicker movements and with quicker movement changes.

4 14 1b. Capturing and Maintaining the Attention of Students

Several techniques were used to capture the attention of students. These techniques included saying, "lights, camera, action", instructing students to pay close attention to performers' movement ideas, standing next to children who were not paying attention, quietly shaking my head in a "no" action, calling out "freeze", asking children to dance quietly, sitting still until the children focused themselves in my direction, and refocusing attention by changing passive participation to active participation. Changing the pace of the music or stopping the activity and asking one of the students to lead the class changed the students' focus of attention, stimulated

them to concentrate on the changes in the music or leadership, and generated increased enthusiasm and interest

4 14 1c The use of Bubbles as a Teaching Tool

On the first week, some children in the children's only class were unwilling to pretend they were in a bubble; therefore, bubble dance ideas such as bubbles changing shape and weight, were not fully explored. Nevertheless, following a collision between two boys on the second week, I reintroduced the idea of each child having a private bubble (that could be stepped into or out of at will) which would offer protection from collisions. This time, the children were more receptive to the idea of pretending there was a bubble surrounding them. Later in the dance program, children embraced the idea of dancing like bubbles. The atmosphere was chaotic when some children blew bubbles and other children popped them. Nevertheless, some children were observed dancing exquisitely, lightly, and delicately while other children spun and hung in the air. A few children jumped up and fell to the ground as though they were bubbles that had popped, then they rose and danced again. When asked to observe actual bubbles and discover whether bubbles reformed and floated after they popped, the children readjusted their dancing to reflect how bubbles drifted, hovered, and eventually popped but did not "resurrect" again.

4.14.1d Modelling

Demonstrating the skill, giving verbal instruction, and holding up signs (when I had laryngitis and could not speak) were all effective methods of instruction. However, combining demonstrations with verbal instructions was the most effective way to teach. For instance, when learning the locomotor skill in locomotor sequences, a few children needed a demonstration of each locomotor skill as well as verbal instructions to help them achieve success. On another occasion, an unexpected incident provided a unique opportunity to combine visual and verbal instructions. For instance, a child spun and fell and after ensuring that the child was unhurt, the accident was turned into a learning experience by asking the rest of the children in the class what they had learned from this incident. Several children volunteered that spinning wildly could cause falls. I agreed and stated it was time to learn a controlled spin. After physically demonstrating and verbally explaining how to "spot", focusing on one spot in the room while turning, to plant a foot firmly on the ground for balance, and to lift one's body so that the spin could be controlled, the children practised and produced more controlled spins.

4.14.1e. Responding to the Dancers' Special Needs

I discovered that it was important to respond to the dancers' needs. For example, to provide stimulation for visually impaired or deaf participants, I asked the school teacher and, later, the children to move the hands of the impaired adults so they

could participate with the rest of the class. Several other participants in both classes had difficulty understanding directions, so they were given direct personal physical and verbal guidance by me, the school teacher, or other classmates.

4 14 1f Tolerating Differences

Sometimes the children needed guidance with respect to tolerating differences in dance abilities. For example, when the children from the intergenerational class danced alone and practised the "Ball Dance", I informed them that although some of the seniors could not express themselves verbally or move as energetically as the children, they still liked dancing with them. The expression on the children's faces indicated their surprise and happiness. I noticed that in the following intergenerational class, many children made an effort to dance with the seniors in a kind, courteous manner.

4 14 1g Challenging Abilities: Testing Students' Limits

Twice I tested the limits of the performers' capabilities and both times, most of the children were able to follow all the directions and all the adults and children were able to cooperate as a group. On the first occasion, the adults and children responded to the project of working together to create movement ideas for movement concept word pairs by discovering verbal and nonverbal ways to communicate and collaboratively produce group performances of the movement

concept word pairs. On the second occasion, the kite flying activity which tested the dancers' ability to follow complex instructions, was very difficult for all the dancers and required coaching throughout the activity. Most of the children followed the instructions; however, the children in the children's only class needed more verbal guidance while performing than the children in the intergenerational class. Most seniors were unable to respond correctly and eventually stopped moving until they received and accepted guidance from their child partners.

4.14.1h. Maintaining a Positive Environment: Positive Reinforcement and Discipline Issues

Overall, a positive environment was maintained through positive reinforcement such as providing encouragement and praise for appropriate behaviour and by providing dance activities that were enjoyable and suitably challenging. The most successful way to elicit positive behaviour was through praise. For example, after complimenting the children's successful attempts to keep pace and not be "fooled" by the changing musical tempo, the children demonstrated appropriate musicality and did not act silly while dancing. Positive reinforcement such as emphasizing dancers' strengths by encouraging the things they could do and not focusing on the things they could not do, seemed to be an effective approach with seniors. Over time, as their skill and attention level increased, they voluntarily participated in more activities.

Throughout the dance program, there were times when the children appeared to test the rules of appropriate conduct. The school teachers were always supportive of my teaching, however, they handled the discipline issues. Most often a "time-out" with students dancing or watching at the periphery of the dance group was an effective way for most disruptive students to calm down, regain their composure, and return to the dance activities without causing further disturbances to the dance class. Some children in the children's only class exhibited negative behaviour from time-to-time which did not alter regardless of the actions taken by the school teacher or the manner in which I conducted the class. Nonetheless, on occasion negative behaviour was turned into positive behaviour which endured for the following few weeks. For instance, I asked one child who persisted in moving wildly to lead the class. At first, he resisted but after I stated that his movements were very expressive, he began to make up movements that the rest of the class copied. Then I asked several other children, including some children who had been attentively watching the wild actions of the first boy, to lead the class. The children in the class enjoyed having different leaders to follow and the boy who had been moving wildly no longer did so. Furthermore, on the following weeks, I noticed that this boy and his attentive "watchers" were dancing less wildly and were taking a more serious approach towards the dance activities. The school teacher commented to me that these children were cooperating better than she had initially expected.

4 14 2. Reactions to Breathing/Relaxation Exercises

The breathing exercises promoted correct body alignment (during the time of the breathing/relaxation exercise) and quietness in most participants, combining breathing and imagery in the relaxation exercises promoted a quiet calmness in most participants. During the breathing exercise the children in the children's only class were more fidgety and noisy than the children in the intergenerational class; during the imagery relaxation exercises the children in both classes were equally noisy and restless. Following the breathing exercises or imagery relaxation exercises all the children, including the child who was consistently noisy in the dance class, sat quietly for a few moments. Apart from a momentary stillness directly following the breathing and relaxation exercises, no other physical changes were noted in the children. The seniors did not hesitate to breathe deeply and to spend a few moments in silence. At the end of the exercises, all the adults looked noticeably calmer and more relaxed as evidenced by their shoulders being down and their hands resting quietly in their laps. Overall, the breathing exercises produced stillness that lasted for a longer period of time than the imagery relaxation exercises in all participants.

Interestingly, various relaxation activities promoted unexpected behaviour. For instance, following the activity where participants had to squeeze and release a ball in time to the music, the school teacher of the children's only class informed me that her partner concentrated hard, followed along well, and accurately kept the beat of the music, thereby demonstrating skills this child had not been able to perform in

previous dance or other gym activities. Additionally, over the span of several weeks, exposure to the imagery exercises promoted physical movements which gradually subsided into stillness. For instance, on their first exposure to imagery, some adults and children in all the classes acted out the imagery of swaying trees by smoothly swaying their torsos and arms; on the second exposure to imagery exercises, some adults in the intergenerational class acted out the imagery of a water fountain splashing them by sweeping their arms in a downward motion from their heads to their torsos; on the last exposure to the imagery exercises, no one acted out the imagery of the waterfall.

4.14.3. Attitude towards the Dance Experience

4.14.3a. Intergenerational Class

The attitude between the children and adults in the intergenerational class was generally positive throughout the 12 weeks. On the first week, smiles and jovial remarks were made throughout the class. By the third week, rather than being prompted to dance with the children, most adults automatically danced with them and most children willingly held their adult partner's hands when dancing. By the fifth week, the seniors encouraged each other and the children, appeared excited about dancing together, and asked if they could mime with the children rather than watch them perform. An interactive atmosphere was generated in the bubble blowing activity in which all the children and all the adults, even those on portable oxygen

units, blew bubbles together, and danced with their arms in light, popping motions.

The school teacher commented that she liked this activity and particularly liked how this dance program was bringing the children and seniors together in an interactive way

From the eighth week onwards, the seniors and children spent some time socializing between some of the dance activities. On the twelfth week, both the adults and children expressed appreciation for each other's efforts. Specifically, after the adults performed a streamer dance, the children clapped and after the children performed the "Bird Nest Dance", the adults clapped. Lastly, it was evident that the children had adopted a patient, caring, and thoughtful attitude towards the seniors.

Specifically, they no longer displayed impatience if the seniors did not understand the directions to a dance, as some children did on week 8 when the adults did not hang onto a corner of a scarf for an impromptu scarf dance. Instead, the children held the adults' hands and quietly guided them through the dance motions. Thoughtfulness and caring was demonstrated when the children moved more slowly, repetitively, and with smaller motions so the adults could follow along and not be hurt by the movements.

4.14.3b. Intergenerational Class: Seniors Dancing without the Children

During the first two weeks, some seniors were a bit reluctant to dance and watched the other adults dance, or wandered out of the dance room before the dance session

was finished. From the third week onwards, all the seniors that had chosen to dance remained in the dance room for the duration of the lesson; however, some seniors fell asleep from time-to-time throughout the dance session.

4.14.3c Intergenerational Class: Children Dancing without the Seniors

The children were as quiet, gentle and careful when dancing alone as they were when they danced with the seniors. At times, they tended to move with a bit more expression and with larger movements when they danced in the gym.

4.14.3d Children's Only Class

Compared to the children in the intergenerational class, the children in the children's only class tended to be more exuberant, more noisy, more disruptive, more reluctant to dance in a particular group, and more inclined to collide with one another. Despite these characteristics, they gradually became more attentive, exhibited less disruptive behaviour, and were less inclined to collide with one another, especially when they were given challenges, such as following quickly changing movement patterns.

4.14.4 Observations of Participants' Behaviours Before Dance Class

Although it took a long time for me to escort the adults into the dance room on the first dance day of the intergenerational class, from week 2 onwards many of the

children escorted the adults to the dance room while the rest of the children seated themselves quietly in the middle of the room and waited for the dance lesson to begin. The seniors were always seated in chairs placed in a semi-circle around the children. As the week progressed, it took less time for most seniors to arrive in the dance room. Specifically, the time was reduced from 45 minutes on the first week to about 15 minutes from week 6 onwards. The 10 adults, who could and did complete all pre-testing, eagerly came to most of the classes. An additional five adults, who had refused or could not complete pre-testing, were enthusiastic weekly participants and willingly participated in all subsequent testing. Several seniors who were not part of the research project occasionally participated in the dance class. These seniors had refused all pre-testing, were late arrivals at Halcyon Home, or just accidentally wandered into the dance room from time-to-time. On most weeks, one or two volunteers, parents, and community members with children would join in the class. On the last class, a few dignitaries, including the Mayor and a councillor, a resident's adult son, parents of some of the children, an activity coordinator from New Denver, and the head nurse, watched and participated. As community involvement was encouraged at Halcyon Home, extra guests were always welcomed.

Due to forgetfulness, most adults needed weekly reminders about the pending classes. Nonetheless, two seniors continued to hesitate before deciding to come, two seniors continued to be confused or forgetful about what was going to happen, and two seniors deteriorated in health to the extent that they could no longer walk

and had to be wheeled to the room in wheelchairs. All the children seemed excited each week and their initial shyness in forming a circle had vanished by the second week.

As the weeks went by, the attitudes of the adults became more outgoing and happy. They smiled when they saw me enter Halcyon Home and told me that they liked my energy and enthusiasm. Whenever the children were in the room most adults were especially cheerful and perky and a strong bond developed between them. On the fifth and tenth weeks, one adult complimented the children on their fine quiet behaviour, stating that this made her look forward to them coming each week, and from week 8 onwards, the children and adults spent some time socializing before beginning the dance activities. When children were late due to bus delays on weeks 7 and 11, the adults voiced concerns about the children and quietly listened to the pianist (who always played a few moments before the class began) until the children arrived. However, on week 11, while waiting for the children to arrive, the adults were not as concerned, they gave me a thank-you card and independently did some breathing and stretching exercises until the children arrived. The adults always smiled broadly at the children before focusing on me and waiting for my dance instructions.

On the seniors' only dance days, the initial difficulty I experienced with ushering seniors into the room while other seniors left was resolved by getting assistance from the nurses and holding the class in the lounge directly after church services. Seniors

were already in attendance for church and chose whether they would remain for dance classes or return to their bedrooms. In the second week, six dancers left shortly after the dance class began, on all the following weeks, all dance participants remained in the lounge and danced.

On the days of dancing without the adults, the children in the intergenerational class maintained their quiet behaviour, entered the gym quietly, and waited for instructions. In the children's only class, weekly patterns tended to alternate between quiet and noisy entrances; morning classes were generally quieter than afternoon classes. On each class the children appeared to have a hard time containing their eagerness and excitement.

4.14.5 Observations of Participants' Behaviours After Dance Class

At the end of each week in the intergenerational and in the seniors' only class, I shook each adult's hand and thanked each adult for participating. During the first few weeks in the intergenerational class, the adults offered comments about their enjoyment of the class, the children's progress, and their happiness to see the children. From the midpoint of the program the seniors' comments focused on their looking forward to the class, the music, and the children. Similarly, in the seniors' only class, many adults offered positive comments as they shook my hand. They thanked me and complimented my "cheerful, bright" attitude, told me they had a good time, that they enjoyed the class and the music, and that they felt better. One adult

simply stroked my hand for quite a long time

After each dance class, all the children in each class were thanked and complimented on their behaviour. On most occasions several children from the intergenerational class said or waved good-bye to me as they left the dance class, on the last few weeks, many children hugged the adults. Only a few children in the children's only class said or waved good-bye as they left the gym.

After each intergenerational class most adults appeared alert, excited, and cheerful and at least one adult always hugged the children; the children appeared full of energy and said or waved good-bye to the seniors. In the first four weeks of the intergenerational dance class and the seniors' only dance class, the seniors left the room right after dance classes were over; on the fifth week the seniors remained seated until I shook hands with them. From the sixth week onwards the seniors tended to linger after class and socialize amongst themselves. Occasionally after class some adults were happily humming a tune and sometimes a few adults seemed confused or upset but did not seem to know why. (See Appendix 14 for details)

Most adults were expected to participate; others were so infirm that it was not expected they would dance but the nurses believed these elders would enjoy the music. However, the adults were full of surprises with respect to who participated and who did not as the ones that were quite infirm were active during and after the

class whereas several adults who were physically able to participate, left quickly after the class was over and eventually dropped out of the dance program.

On the last week, teachers presented awards to all the children in both classes. I presented small gifts and thank-yous to several school staff members, Halcyon Home staff, and the pianist. I gave awards to the Nakusp adults, the New Denver adults, and the Burton children. I presented gifts and thank-yous to New Denver staff, the Burton school teacher, and the Burton parent volunteer. All the participants were thanked. In the intergenerational class, the adults expressed a hearty thank-you to me, the pianist, the school teacher, and the children. One adult stood up and stated how this dance program made them feel important and that they were not isolated members of the community. The children gathered around and gave hugs freely to the seniors who happily received and returned the hugs. The head nurse expressed surprise that the adults stayed in the room to chat as they usually left immediately after other scheduled activities had ended. In the children's only class, several children waved or said good-bye as they left the gym. Many children wrote letters of appreciation which were presented to me by their teacher after their post-testing was completed.

Chapter 5

DISCUSSION

5.1. Taking a Synergistic Approach in Creative Dance

Although teaching creative dance requires taking a synergistic approach because it combines physicality (motor skills), cognition, affect, and social skills, for ease of understanding and testing, each component was examined separately. In addition, different tests were given for children and adults as they had different capabilities and limitations with respect to each component.

5.2. Physical Domain

5.2a Hypothesis 1 Creative Dance will Enhance Motor Skills

Finding no significant increases for Physical 1 Test for Nakusp adult dancers but finding significant increases for Physical 2 Test partially supports the hypothesis that creative dance enhanced motor skills. Although increases in Physical 1 Test and decreases in Physical 2 Test were seen for New Denver adult exercisers, none of the results were significant, implying that the exercises performed in this class did not have a significant impact on the motor skills measured by these tests.

Although not significant with Bonferroni corrections, Nakusp adult dancers showed improvements in standing, sitting, walking, and balance as measured by Physical 1 Test. That they showed improvements in these motor activities as well as an increased mobility and smoothness of movement in the shoulders, hands, arms, legs, and feet as measured by Physical 2 Test, but that adult exercisers did not show similar improvements would suggest that for frail elders, creative dance has the potential to increase and improve more types of physical skills than traditional exercise classes. As the Nakusp creative dancers and New Denver exercisers were, on average, at about the same physical level on both tests when the research project began, differences in skill level at post-testing cannot be attributed to groups beginning at different skill levels. Plausible explanations include the presence of children, the music, and the movement variety in creative dance, and the sensitivity of the tests to measure certain motor skill changes. Dancing with children may have increased the motivation and actual number of movement executions by the adults. Or, perhaps the music and playfulness of responding to various imagery in creative dance increased the variety, number, and ease of movements made by adults in their various limbs and joints. Physical 2 Test was a sensitive measure for joint mobility for dancers as components of Physical 2 Test were developed from an adult creative dance program (by Caplow-Lindner et al., 1979). On the other hand, components in Physical 1 Test were developed from physical assessments used to test basic functional motor abilities in elderly adults. This test adequately measured both groups' functional walking and balancing abilities but as scores were quite high, a ceiling effect may have accounted for the nonsignificant improvement reported for

adult participants. Nonetheless, that the skills showed some improvements for both groups would suggest that incorporating sitting, standing, and walking activities into future classes may continue to enhance or maintain these motor skills.

All the children's groups showed an improvement in the execution of running speed and agility (balance), bilateral coordination, strength, upper limb coordination, response speed, and visual motor control on the BO test, supporting the hypothesis that creative dance enhances motor skills and implying that movement, whether dance or exercise, is instrumental in improving the performance of certain motor skills in children. Unlike the adults, who began at approximately the same physical level, all the children's groups had significantly different pre-scores, indicating they were not at the same level at the beginning of the dance program. Furthermore, not only did both Nakusp dance classes have higher mean pre-scores than the Burton physical education class, they also had higher mean post-scores than the Burton physical education class. This means the Nakusp children were, on average, at a higher level of performance skill than the Burton children at both the beginning and end of the 12-week research project. Nonetheless, when comparing difference scores, there was no significant difference between the groups, nor was there a significant difference when the average of both dance classes difference scores were compared to the Burton difference score. These findings suggest that although the average pre-test score of each group indicated a different level of physical skills at the beginning of the program, both the creative dance program and the physical education program stimulated similar average increases in motor skill scores at the

end of the program

As post-scores were significantly higher than pre-scores for the Nakusp children's intergenerational dance class and for the Burton children's physical education class, it would seem both creative dance and physical education activities promoted improvement of physical skills in children. The nonsignificant increase in post-scores in the Nakusp children's only dance class may be explained by their high pre-score leaving little room for improvement. In other words, a ceiling effect may have occurred whereby the increases in scores were limited as they were approaching the upper bound of the test. Thus, it would appear that in addition to physical education and creative dance classes enhancing motor skills, involvement in creative dance may also play a role in maintaining a high level of physical abilities.

As an extensive literature search had revealed a sparsity of empirical and qualitative research studies with respect to changes in physical skills for either the elderly or young creative dance participant, it was difficult for this current research study to lend support to previous studies but did provide an opportunity for this study to begin to fill the void in the literature and to confirm observations made by dance writers and qualitative research. For instance, as the Nakusp creative dancers showed actual increased flexibility and smoothness of movement in the shoulders, arms, hands, legs, and feet (as measured by Physical 2 Test, Appendix 1) this study supports statements by Pruett (1983) that dance could increase mobility and supports statements by Lindner and Harpaz (1983) that dance could improve flexibility.

Similar to the Caplow-Lindner et al. (1979) observations, elderly participants showed some improvement in upper limb movements but did not improve as much in lower limb movements. Finally, similar to observations in the Rossberg-Gempton (1994) study, an enhancement of fine motor skills (movements with wrists and fingers) was observed by most dancers in this study.

As in the Caplow-Lindner et al. (1979) study, this current study briefly included staff reports on physical functioning and these findings are included later in the program evaluation sections of this paper. (See Sections 5.9.3, 5.9.4, and 5.9.5.)

5.3. Cognitive Domain

5.3.a. Hypothesis 2: Creative Dance will Increase Cognition.

The cognitive elements of memory, spatial reasoning, and sequential patterning appear to be found in creative dance; some of the subtests (such as the digit symbol, block design, and object assembly subtests) of the Performance Scale in the WAIS-R and WISC-R intelligence tests examined similar elements of cognition (Groth-Marnat, 1990). Furthermore, the WISC-R was considered to be "the best standardized, most objectively administered and scored test of its kind" (Bortner, 1985, p.1713) as well as being a "dependable measure" (Detterman, 1985, p.1715). Therefore, this study used the Performance Scales in the WAIS-R and WISC-R tests to investigate the second hypothesis; namely, that creative dance would increase

cognitive abilities. In this study, neither creative dance nor exercise movement activities increased cognitive abilities for adults; however, both creative dance and physical education activities increased cognitive abilities for children.

As with the physical tests, there was no significant difference between groups on average pre-scores indicating that Nakusp creative dancers and New Denver exercisers were, on average, at about the same cognitive level when the research project began. A small increase in cognitive abilities was found. There was an increase in cognitive abilities for adults (as reflected by increased post-scores on the Performance Scales in the WAIS-R for each group of adults) and the Nakusp dancers had higher mean post-scores than the New Denver exercisers; however, the increase in post-scores and the difference between groups was not significant. Therefore, hypothesis 2 was not upheld for the adults. Nevertheless, instead of declining, cognitive abilities were moving in the direction of increasing for both the exercise and creative dance groups suggesting that physical movement may enhance, or, at least, maintain certain cognitive abilities in adults.

Challenges were presented in the study with respect to interpreting and administering the WAIS-R with the adults. For instance, the performance scales pre-scores and post-scores were low, but as most of the participating adults were in an older age bracket than the normed age groups reported in the WAIS-R, it is difficult to know whether the low scores for the adults in this study were typical or atypical for adults within this upper age bracket. Furthermore, administrative issues may have

influenced the scores. For instance, many adults could not see the small details on the Picture Arrangement and Picture Completion cards making it difficult to discern whether cognition or lack of visual acuity or a combination of both factors influenced the results. As time was also a factor in scoring the WAIS-R performance scales, tasks that were correctly completed but took longer than the allocated time were considered incorrect as demanded by the WAIS-R scoring protocol, thereby keeping scores fairly low.

These factors would seem to imply that the WAIS-R test was far from ideal in testing cognitive changes in the elderly. However, according to the WAIS-R manual, "norms are provided through age 74, but many people who are older than 74 may be tested using the norms for ages 70-74" (p. 51, Wechsler, 1981). In addition, no specific criticisms were found in the 1985 Mental Measurements Year Book with regard to testing adults older than the upper normed age bracket; on the contrary, it was reported that one of its advantages was the inclusion of samples "of the 65 to 69 and 70 to 74 age groups" (Kaufman, 1985, p.1701). Although not ideal, the WAIS-R test was considered the best measurement tool available at this time due to its standardization and the reliability of its Performance Scale, which according to one of the reviewers in the 1985 Mental Measurements Year Book was "excellent, averaging .93" (Kaufman, 1985, p.1702). Therefore, it seemed acceptable to use the WAIS-R test for the elderly participants in this study.

Despite the challenges presented, it was observed that during post-testing adults: (a)

took less time to complete the subtests but still tended to take longer than the allocated time frame per task, (b) understood the directions of the tasks more clearly (demonstrated by fewer questions being asked about the subtest), (c) and appeared more motivated to participate (demonstrated by a determination to complete tasks or an eager willingness to engage in an activity with me, neither of which was visibly demonstrated during pre-testing). These factors imply that not only were the adults more motivated during post-testing, but that they may have had more performance capabilities than those permitted to be recorded by the parameters of the WAIS-R test

As the children in both dance groups and the exercise group began and ended the program at about the same cognitive level and as all three groups of children showed significantly better mean performance post-scores than mean performance pre-scores, hypothesis 2 was supported for all three groups of children. In other words, it would seem that movement, whether it was dance or physical education classes, enhanced cognitive abilities. Maturation was not responsible for increased scores as developmental growth is accounted for by the test scoring, such that raw scores are converted to scaled scores which are adjusted for age. Explanations for increased scores include: (a) the "Hawthorne effect" whereby they had increased their motivation to perform to please me, the researcher, (b) practice effects, and (c) physical movement

As I had established rapport with the children in the intergenerational creative dance

class and the children's only creative dance class and we had developed a familiarity with one another during the 12-week dance program, these children may have wanted to please me more at the end of the program and therefore increased their post-scores. However, this does not explain the increases in the Burton scores because apart from the testing, I had not interacted with these children in the duration of the 12-week intervention and therefore had no opportunity to develop the rapport and familiarity with these children as I had with the Nakusp creative dance children. Therefore, the "Hawthorne effect" does not adequately explain the increase in scores.

Practice effects or learning may account for the dramatic increases in the performance tests post-scores (from an average of 106 to 119) with the children in both the dance and exercise groups. Examining the Mental Measurements Yearbooks, learning has been reported (of up to eight to nine points on the Performance Scale) when there was a one month interval between tests for the WAIS-R (Kaufman, 1985; Matarazzo, 1985), however, nothing was stated about practice effects or learning with respect to test-retest situations for the WISC-R (Bortner, 1985; Detterman, 1985; Witt & Gresham, 1985). As the test-retest interval in this current study was longer than one month and as practice effects were unreported for the WISC-R, it is not possible to determine whether the results were a function of practice effects. Furthermore, the test and retest times were approximately four months apart which was longer than the eight week interval between tests reported in the Fretz et al. (1969) study. Like the Fretz et al. (1969)

study (which found a 6.17 point increase), this current study found increases (between 10.92 and 14.21 point increases) in Performance Scale post-scores, so one could assume the Performance Scale of the WISC-R was more sensitive to the types of interventions reported in these two studies. One could argue if practice effects were present, post-scores for both the Verbal and Performance Scales in the WISC-R would have increased. Indeed, increases were found in both scales in the Fretz et al. (1969) study; however, the only statistically significant increase was for the Performance Scale. One could further speculate that had both scales been administered in the current study, there may have been a similar trend as reported in the Fretz et al. (1969) study. On the other hand, one could assume that as there would have been more tasks, the children might not have remembered or learned the performance tasks, thereby keeping post-scores similar to the pre-scores. Due to the limitations of the study (limited test administration time allowed per child during school hours and only having one examiner), it was not possible to administer both scales. Furthermore, as the Fretz et al. (1969) study had shown increases in the Performance Scale but not in the Verbal Scale, and as the Performance Scale had subtests which examined similar cognitive elements claimed to be present when learning creative dance, it seemed appropriate to only use the Performance Scale in the current study.

Perhaps the increase in WISC-R Performance Scales was more due to movement, whether it was physical education classes or creative dance. No empirical studies were found with respect to increasing cognitive abilities after participating in creative

dance but a few empirical studies examined the effects of exercise on cognition in adults (Barry et al., 1966; Powell, 1979; Stamford et al., 1974; Young, 1979) and children (Fretz et al., 1969; Ismail, 1967). Similar to the studies which found increases in post-scores using components of the WAIS-R such as general information (Stamford et al., 1974), digit symbol and block design (Young, 1979) but had their internal validity threatened by having a small number of participants, this current study showed a trend of increasing post-scores using components of the WAIS-R (all the Performance subtests) and also had its internal validity threatened due to the small number of adult participants in each group. However, the current study appears to lend support to the finding in the Fretz et al. (1969) study which reported an increase in the Performance Scale of the WISC-R after exposure to a physical activity program. As all groups experienced physical activity and all groups increased in cognition, future research could explore whether there are components of physical activity or special types of physical activity which increase cognitive abilities.

Although either practice effects or physical activity may have influenced the increase in Performance Scale post-scores for the children, I believe the statistically significant findings from this study support the idea that keeping the body physically active enhances cognitive abilities in children. Future studies could investigate these issues further.

Despite the difficulties and challenges presented, this current study contributes to the

literature by providing an empirical examination of the effects of physical activity, especially creative dance, on the cognitive abilities of elderly and young participants. Although the creative dance literature appears to be devoid of empirical studies examining the effects of creative dance on cognitive abilities, the role of cognition in creative dance is recognized. Instead of focusing on empirical methods or using standardized tests (i.e. the WAIS-R and WISC-R), the creative dance literature has examined cognitive changes using observational methods and/or has tended to make claims that cognition is related to dance itself such that cognitive goals form part of the dance lesson (i.e. Humphrey, 1987; Parker et al., 1988; Weisbrod, 1972; Woodruff, 1985). Some of the cognitive goals listed in the aforementioned literature, such as dancers (a) becoming aware of body parts and body alignment, (b) gaining knowledge of dance elements, (c) remembering creative dance explorations and dance sequences, (d) being able to attend and follow directions, and (e) demonstrating creativity in dance as a result of participating in creative dance classes, were observed and documented in this current study and the findings are interpreted in Section 5.11.3.

5.4. Social-Affective Domain

In this domain several hypotheses were tested. These included: hypothesis 3, that creative dance would increase positive affect; hypothesis 4, that an intergenerational creative dance class would have a greater positive affect on children's affect than a creative dance class without the elderly participants; hypothesis 5, that creative

dance would increase social skills, and hypothesis 6, that an intergenerational creative dance class would have a greater positive effect on children's social skills than creative dance without the elderly participants.

5.4a Hypothesis 3 Creative Dance will Enhance Positive Affect

Overall, the third hypothesis, namely, that creative dance would enhance positive affect was upheld for the adults, but was not upheld for children. However, as the happiness scores for children were consistently low (indicating happiness) before and after class and as the self-concept scores for the children were consistently high (indicating high self-concept) throughout the creative dance program, it appears that participating in either creative dance classes or physical exercise classes had no deleterious effects on children.

As reported earlier, no empirical studies were found in the literature to support statistically the observations of the dance teachers and dance therapists with respect to creative dance positively affecting affect. However, two dance studies were found which empirically reported an increase in positive social-affective changes in dancers following participation in modern or advanced dance classes (Gurley et al., 1984, Poretz, 1974, cited in Gurley et al., 1984). Unfortunately, as previously stated, due to self-selection or unknown selection procedures, the external validity of these studies was somewhat questionable. Nevertheless, the adult dancers in this current study reported an increase in positive affective changes such as feeling happier and

more relaxed following dance, thereby lending support to the Gurley et al (1984) study which also reported an increase of self-reported feelings of happiness and relaxation by participants following dance classes. However, unlike the Gurley et al (1984) study which found dancers' evaluations of positive changes were higher than participants involved in sports (such as kayaking, fencing, or basketball classes), the current study showed that there was an increase in mean positive post-scores for both the Nakusp dancers and the New Denver exercisers and that the New Denver exercisers showed overall higher mean positive emotion scores during pre-testing and post-testing than the Nakusp dancers

As pointed out by Gurley et al (1984), their dance participants chose to take dance classes and may have been more enthusiastic which could account for the greater positive changes. If enthusiasm accounted for more positive changes, then it would seem that both the Nakusp dancers and the New Denver exercisers should have shown equally positive changes as all the seniors chose to participate in the research project. However, there were differences in positive emotions between the groups so enthusiasm alone does not adequately account for increases in positive changes and the explanation of the reason for the differences remains unclear.

On the other hand, as there was no significant increase in feeling happier after dance class for the children, this current study does not lend support to the Gurley et al (1984) study with respect to changes in children following participation in creative dance. This current study also does not lend support to the Poretz (1974, cited in

Gurley et al. (1984) study which found an increase in self-concept scores following participation in modern dance. However, the pre and post self-concept scores were not reported in the Poretz (1974, cited in Gurley et al., 1984) study, so it is unknown whether these girls reported a lower level of self-concept initially and thereby had an opportunity to increase in positive scores, whereas the self-evaluation of self-concept for the children in the current study was, on average, very high and fluctuated very little over the 12 weeks, leaving very little room for positive changes. Similarly, the children in the current study also consistently scored themselves at a very high level of happiness before each class, leaving very little room for improvement and once again suggesting a ceiling effect. In other words, the tests may have been limiting factors as children's scores were already approaching the lower bounds of the "happy/sad" faces scales and the upper bound of the Cratty Self-Concept Scale. This latter finding of little change when there was a high level of happiness or self-concept seems to agree with the Frazier and Nagy (1989) findings of no significant changes in mood profiles in persons who possessed "above average mood states prior to the exercise program" (p. 286).

As so few empirical studies were found for the effects of dance (including creative dance) on mood and as creative dance is a physical activity, empirical studies researching the effects of another physical activity, namely, exercise on mood were examined. The most well researched studies, having the fewest (or no) methodological problems used the standardized Profile of Mood State (POMS) scale, so this scale was the original choice for this current study. Unfortunately, it was not

an acceptable tool for this population of elderly adults. It was evident during pre-testing (before the creative dance program began) that these adults generally had difficulty seeing, hearing, or remembering the questions and, therefore, eliminated the possibility of administering the tests on a group basis. Thus, the POMS test, scheduled to be given directly before and after the creative dance or exercise class in order to monitor transient mood changes, was "piloted" before the program began.

As noted earlier, administering the test orally to each participant took 45 minutes rather than the anticipated 10 minute group administration time. Administering half of the test would not have been a solution because it still would have taken too long to administer and therefore would not have been an effective measure of transient mood changes. Thus, the POMS was not an appropriate tool, but the emotions scale with its few items, ease of administration, and prior success in recording transient mood changes in previous posture work (Duclos et al., 1989; Rossberg-Gempton & Poole, 1993; Rossberg-Gempton et al., 1994) adequately served the purpose of quickly recording changes in mood for the elderly group.

Similar to physical exercise studies which increased positive affect (i.e. "vigour" in the POMS test) following exercise (i.e. Berger & Owen, 1983; Berger et al., 1993; Dyer & Crouch, 1988) and physical exercise studies which found a decrease in negative emotions (i.e. anger in the POMS test) following exercise (i.e. Berger & Owen, 1983; Berger et al., 1993; Dyer & Crouch, 1988; Dyer & Crouch, 1987; Markoff et al., 1982; Maroulakis & Zervas, 1993; McGowan et al., 1991; Simons &

Birkimer 1988) this current study showed that positive emotion scores increased and negative emotion scores decreased in adults following participation in creative dance thereby supporting these previous studies as well as the current hypothesis that movement, in this case, creative dance, could enhance positive affect. Although positive emotions increased and negative emotions decreased following exercise for New Denver exercisers, significant changes in positive and negative emotions may not have been possible due to a ceiling effect for the positive emotion scores and a floor effect for the negative emotion scores.

BDI scores indicated that, on average, most participants were not depressed. Nevertheless, similar to exercise studies which showed a decrease in POMS depression scores following exercise (i.e. Berger & Owen, 1983; Berger et al., 1993; Dyer & Crouch, 1988; Dyer & Crouch, 1987; Markoff et al., 1982; Maroulakis & Zervas, 1993; McGowan et al., 1991) and similar to studies which showed a decrease in BDI scores following exercise (i.e. McCann & Holmes, 1984; Roth & Holmes, 1987), depression scores decreased over time from the "mild-moderate" range for the Nakusp adults participating in creative dance. That Nakusp adult dancers' mean scores decreased in range whereas the New Denver group scores remained in the "mild-moderate" range may have been due to the music and camaraderie of dancing with the children. It is recommended that future studies investigate the influence of music and movement further.

Finally, in the first week of the program, in the "relaxed/tense" scale, more Nakusp

dance participants reported feeling very relaxed at post-testing than at pre-testing thereby supporting studies which found decreases in tension following exercise (i.e. Berger & Owen, 1983; Dyer & Crouch, 1987; Maroulakis & Zervas, 1993; McGowan et al., 1991; Roth, 1989). Interestingly, no such decreases in tension were found following exercises for the New Denver exercisers. Although not significant with Bonferroni corrections, a move towards feeling good was noted for Nakusp dancers on week 2 and no significant differences were found between the exercise and creative dance groups even though more Nakusp creative dancers than New Denver exercisers moved towards feeling "good" in week 1. The nonsignificance of these findings may have been due to the small sample size of each adult group.

Overall, the affective results seemed to indicate that both creative dance and exercise enhanced positive affect in adults. However, creative dance had the added benefit of promoting the general sense of relaxation after class.

No long term effects were found for adults using the positive affect scales or the BDI scores. Specifically, a pattern of high scores were seen over the three testing times for positive emotions, increased post-scores were reported for both groups, and the exercise group generally showed higher pre-scores and post-scores than the dance group. With the exception of week 12 (when the dancers showed a higher mean difference score than the exercise group), the dance group consistently began at a lower pre-score level and increased to a slightly lower post-score than the exercise group. That the Nakusp dancers showed larger increases in mean post-scores than

New Denver exercisers was likely due to the exercisers reporting higher pre-scores, leaving little room to increase their post-scores. Nonetheless, the consistently high scores for both groups indicated that participants in both groups were generally very happy throughout the 12-week program whether they participated in creative dance or exercise.

Similarly, consistently low mean depression scores for both Nakusp creative dancers and New Denver exercisers and no significant differences between these groups indicated that, on average, adults did not feel very depressed. That adult dancers' average depression scores reduced significantly from the "mild-moderate" range to the "normal" range suggests participation in creative dance can be effective in lowering mild feelings of depression in the elderly. That adults exercisers did not report a significant reduction in scores but showed a decrease in average scores on the post-test may have been due to the timing of the test administration. For instance, although all post-testing was done after the completion of the dance program, New Denver participants completed their post-tests after participating in a celebration for volunteers and this may have influenced their general sense of happiness, thereby decreasing their last BDI-scores.

No long term effects were observed for children as the pattern remained consistent throughout the program. Specifically, the consistent pattern of low scores on the "happy/sad" faces scale for both groups indicated that, on average, the children in all three groups felt happy before and after dance or physical education classes; the

consistent pattern of high Cratty Self-Concept Scale scores indicated that, on average, children in all groups reported having a positive self-concept. Thus, one can assume physical movement, whether it is through dance or physical education classes, has similar positive effects on emotions and self-concepts in happy children who have high self-concepts.

5.4b. Hypothesis 4: An Intergenerational Creative Dance Class will have a Greater Positive Effect on Children's Affect than a Creative Dance Class without the Elderly Participants

The fourth hypothesis, which stated an intergenerational creative dance class would have a greater positive effect on children's affect than a creative dance class without elderly participants was not statistically supported in either the findings from the "happy/sad" faces scale or the findings from the Cratty Self-Concept Scale.

Both classes reported feeling quite happy before and after class on each of the three testing weeks and had high self-concept ratings on the Cratty Self-Concept Scale indicating that, on average, the children in both groups were experiencing positive affect throughout the dance program. The "happy/sad" faces scores were very low (indicating a feeling of being very happy) leaving little room for improvement for either group but indicating the children were consistently happy when participating in creative dance. As low scores did not fluctuate for either group, it would appear that the presence or absence of seniors did not significantly influence the self-reported

feeling of happiness in the children during the creative dance program. Similarly, the Cratty Self-Concept Scale scores remained high (indicating a positive self-concept) leaving little room for improvement for either group but indicating the children held consistent positive self-concepts when participating in the creative dance program. As the scores for both groups did not fluctuate, the presence or absence of seniors did not significantly influence self-concept in the children. However, observations in the intergenerational class of increased positive interactions with the seniors after the midpoint of the program coupled with the consistently high self-concept scores and high happiness scores suggests that the presence of the seniors had a positive impact on the children's behavior and attitude.

Overall, this study indicated that both groups had an element of socialization, had gained self-mastery with respect to physical self-expression, and had demonstrated positive self-perception through the high self-concept scores. However, it was observed that only the children in the intergenerational class showed a trend towards an increase in self-concept scores and demonstrated an increase of positive sharing and caring behaviours to fellow classmates, especially to the seniors. These observations lend support to the idea that the trend was due to their exposure to and interactions with the seniors, an opportunity for interpersonal growth not experienced by the children who danced without the seniors. In other words, it appeared that creative dance with the seniors created a sense of personal accomplishment and positive affect in the children which was extended to include the seniors. Thus, the behaviour of the children in the intergenerational class illustrated the idea that

although socialization may be a factor in positive affective changes, creative dance expressions have the added dimension of giving an individual "self-mastery through being in charge of the body" (Hanna, 1988, p. 19) which can contribute to positive self-perception which, in turn, can be extended to include others.

5.4c Hypothesis 5: Creative Dance will Increase Social Skills

High scores in several social skills categories for all groups in Activity One and group work on weeks 1, 4, 8, and 12 indicated that creative dance activities provided an opportunity for participants to demonstrate their ability to cooperate, to communicate (by following directions and responding to music), to feel a sense of belonging (by participating), to lead, to follow, and to be aware of others (by not bumping into anyone) while dancing. That the scores remained consistently high each week in all categories would suggest that these social skills were maintained throughout the weeks in the creative dance classes. Although participating in creative dance may have been part of the reason for the maintenance of these social skills, without a control group with no exercise, one cannot be certain that creative dance has a significant impact.

A fluctuation in scores in participation, specifically, the increase in children's participation scores from week 4 to weeks 8 and 12 in Activity One and group work may suggest creative dance increased a sense of belonging through participation for the children. Increases in adult participation scores from week 4 to weeks 8 and 12

in Activity One would suggest creative dance increased a sense of belonging through participation. Consistently high scores suggested that overall, most dancers participated well in the creative dance program. Thus, it appears the fifth hypothesis, that creative dance increased social skills is supported for some social skills categories.

Similar to findings in the Crain et al (1984) and the Rossberg-Gempton (1994) dance studies, cooperation increased for children in the children's only class and for seniors in group work. Although decreasing slightly on week 8, cooperation was consistently high for children in the intergenerational class in group work. Furthermore, creative dance evoked cooperation across the generations to help build child/adult relationships which was similar to the reported observed findings by Metal-Corbin (1983) and Berryman-Miller (1988) even though these studies had university students rather than young children interacting with elderly adults through dance.

Similar to the Rossberg-Gempton (1994) study, participation in the creative dance program had a positive impact on social skills with respect to communication and the sense of belonging (participation) for adults and children in both creative dance classes and in demonstrating an awareness of others for children in both classes. In other words, in both the Rossberg-Gempton (1994) study and this current research, most participants followed directions well and responded appropriately to music while following the dance teacher and while participating in mime and creative dance group work. As suggested by Andress (1991), it appeared that the music helped focus

dancers' awareness of fast and slow tempos, loud and quiet sounds, and varying dynamics of rhythms. Wolf's (1992) suggestion that music could be an effective way to develop and/or enhance listening skills as well as focus attention on musical changes in a playful way seemed to be supported because students became better at responding to music cues to direct or to change their creative dance explorations. It is also possible that the music and camaraderie of dancing together may have created a mood which, in turn, created a social setting and may have affected group behaviour. For instance, music created an energetic happy social atmosphere, brought group harmony by participants responding similarly to rhythmic patterns, and may have rekindled memories in the seniors. Although no direct link was made, it is possible that the music and dance activities were associated with previous social gatherings because casual comments from some seniors as they were escorted to or from the dance setting indicated they remembered going to these types of social events in the past.

In the Rossberg-Gempton (1994) study and this current study, some child and some adult participants initially refused to actively participate in some activities but watched the other dancers and, over time, actively participated with the rest of the dancers. However, in the Rossberg-Gempton (1994) study, the girls who tended to watch before participating were generally very shy and retiring when new information was presented whereas in the current study, the few children in both classes who did not participate from time to time were the children who had been requested to sit and watch for disciplinary reasons, or were not feeling well, or chose not to dance with a

particular group. On the other hand, a few seniors who were cognitively challenged watched most of the time for the first eight weeks before participating actively in most activities. Although it is unknown why it took so long for some senior dancers to participate, it is possible that they did not understand that they could be active participants rather than audience members. Most child participants in both studies tended not to collide with others while dancing, thereby demonstrating an awareness of one another. In the lead/follow activity, even though adults rarely led, preferring to follow the dance teacher or their child partners, both the adult and children's scores indicated they were willing and able to follow a designated leader and the children's scores in both dance classes showed the children could lead others in their own movement-creations. These observations indicated that in both creative dance classes the lead/follow activity provided a vehicle to promote a reciprocal sharing of physical space through playful nonverbal movement interactions (Gilbert, 1992).

Although definitive numbers were unavailable due to the absence of some participants on video-tape, journal notes indicated that increasing numbers of children and adults watched each other perform as the weeks progressed which suggests that both young and old participants were increasing their ability to pay attention and concentrate on the performers. Although it was unknown why most children but no adults offered positive comments about the specific group performances, an explanation may be that the adults used body language to give feedback by smiling and nodding and were thus too busy showing general appreciation through nonverbal language to formulate verbal feedback as well.

5.4d Hypothesis 6 An Intergenerational Creative Dance Class will have a Greater Positive Effect on Children's Social Skills than a Creative Dance Class without Elderly Participants

Nonempirical articles in the intergenerational literature suggested several values of intergenerational programs including (a) young people and elders gaining a sense of connectedness and usefulness in the community, intergenerational programs incubating "a sense of caring between individuals and between generations by replacing isolation and fragmentation with reciprocity and coherence" (Tice, 1991, p 386) and (b) intergenerational programs enhancing feelings of fulfilment, stimulating a sharing environment which brings satisfaction and enjoyment and can "promote an understanding of human differences" (Berkson & Griggs, 1986, p 142). Contradictory evidence was found in empirical intergenerational studies. For instance, in the Seefeldt (1987a) study, preschoolers who visited, sang songs, and told stories to passive infirm elders in a nursing home setting, held more negative attitudes towards the elderly and their own aging than preschoolers who did not have contact with infirm elders, however, in the Lambert, Dellmann-Jenkins, and Fruit (1990) study, a willingness to share experiences with the elderly (e.g. a snack, a book, or a song) increased in preschoolers. Examining the context of the studies, it would appear activities involving direct contact and involvement between young and old may have been the key to improving attitudes and prosocial behaviour in the children, supporting the contact hypothesis which asserts several conditions must be met in order for positive attitudes to develop between groups. Some of these

conditions include equal status between groups, functional, pleasant interaction which is rewarding to both groups, participation by both groups, and contact that is not casual (Seefeldt, 1987a, 1987b). Comparing preschoolers to children aged 9 years old, the Kuehne (1992) study found a mutual sharing between the elders and the 9 years old children that was not evident with the preschoolers, and that older children helped adults and demonstrated more group solidarity building with the elders than preschoolers when singing, sharing, and participating in an art or game activity.

Although no prior empirical research was found in the intergenerational or dance literature to help substantiate the idea that school children in an intergenerational class would experience a greater increase in social skills when the elderly were participating with them in creative dance, qualitative differences in behaviours were observed between groups in this study partially supporting the sixth hypothesis that the presence of the elderly positively influenced the social behaviour of children in the intergenerational class. Specifically, differences between the two creative dance groups of children were seen in the social skills categories of cooperating, following and leading others, following directions, and watching others. Furthermore, over time, the children in the intergenerational class showed a growth in social development by accepting all the elderly dancers, even those adults with severe cognitive and physical challenges. Although students with special needs were present in the children's only class, a similar acceptance of everyone was not demonstrated by all the children in the children's only class.

The findings in this study supported the Mason-Luckey and Sandel (1985) suggestion that following/leading activities would encourage social relationships in an intergenerational dance class. Interestingly, in the intergenerational class, choosing simple careful ways of moving with adults seemed to carry over to the times the children danced without the adults. For instance, when leading with the props the children in the intergenerational class tended to choose simple movements that their followers could easily mimic whereas the leaders in the children's only class did not tend to choose simple movements making it more difficult for their followers to copy. Children in the intergenerational class were always attentive as they sometimes needed to explain directions to adults and this attentiveness spilled over to their own dancing. For instance, in the museum-poses activity, the intergenerational class children needed less guidance from the dance teacher than the children in the children's only class. Some observed differences between groups may have been due to the dynamics of the class on that particular day. For instance, in the video-taped session on week 4, more children in the children's only class than children in the intergenerational class watched performances of children with props. However, as the weeks progressed, most audience members watched other dancers perform.

An increase of quiet behavior, concern, tolerance and respect for limitations (demonstrated by an increased willingness to participate in group activities and to display open affection to the elderly) was noted in the children of the intergenerational class. The increased willingness to dance with seniors in a concerned tolerant and respectful manner coincided with the dance activity which

required the dancers to form groups and collaborate in the creation of performance pieces for dance concept word pairs. In the intergenerational class, encouraging the children and adults to create ideas together, to practice the dances together, and to perform the dance pieces marked the beginning of a close social bond between these two generations. The children took the task of working with the seniors seriously and reminded each other to perform with the seniors; the seniors responded by contributing ideas and/or by following directions given by the children in their group. By engaging in this activity as equal partners, a shift in social interactions occurred: most of the adults and children began to share responsibility during the creation and performance of a group endeavour. Although not empirically based, these findings would add observational support to the Kuehne (1992) study of mutual sharing and group solidarity being built between school children and the elderly and of children helping the elderly, in addition to describing a practical application of elements in the previously mentioned contact hypothesis.

On the other hand, the children in the children's only class were less focused on the process of creating a performance piece and working as active members to contribute ideas to perform a group product. Instead, each member danced spontaneously and seemed to respond to whatever movements the dominant person, the unspoken leader, initiated at the time of performance. In other words, although the performance pieces were danced in cohesive group actions, these children did not demonstrate an attempt to contribute to the group equally during the creation of the performance piece. Unlike the intergenerational class, no change

was seen in the children's only class in group interactions other than an ability to create and respond to the movement dynamics spontaneously within their own dance subgroups

A demonstration of caring and gentleness was demonstrated by children in the intergenerational class during the "Bird Nest Dance", whereas the children in the children's only class tended to be more exuberant and wild in their actions suggesting the presence of seniors may have tempered the spirit of the child dancers to accommodate the slower movement pace and limitations of the seniors in the class. In the "Bird Nest Dance", the feeling of joy was generated by the brief but bubbly boisterous exchanges between the children and adults. The activity of children being birds that happily flitted from adult flower to adult flower seemed to provide a basis from which an interactive social bond was formed between the adults and children. Being in the nest at the beginning and end of the dance brought group cohesion back to the children. There also appeared to form a "bird-to-bird", child-to-child bond. On the other hand, even though the children in the children's only class began and ended the activity as a cohesive group in the nest, they had to imagine they were flitting from flower to flower and unlike the children in the intergenerational class, a social bond did not seem to form between these children during or after this group activity.

Although it cannot be statistically verified, the difference in attitude towards the dance activities and the difference in the movement expressions may have been

facilitated by the necessity of dancing safely with the elderly dance members within a small movement space. The adults responded to physical contact of hand holding and the gestures of hello, and hand waving with wide smiles, thereby communicating their happiness to the children. Finally, in the intergenerational class, hugs seemed to be a spontaneous mutual sharing of appreciation and affection between some adult/child members of the class. Therefore, it seemed the creative dance activity was the vehicle to promote group cohesion for all dance group members in both classes but the extra social skills of caring and tolerance occurred when children were placed in a position of responsibility with respect to dancing in a gentle manner with the seniors, who needed and accepted care and guidance from their child dance partners. In conclusion, the findings indicated that prosocial behaviour is stimulated by participating in shared group involvement in dance activities and that additional prosocial behaviour is possible when these activities are pursued in an intergenerational venue.

5.5. Hypothesis 7: There will be three Positive Relationships: (a) between Physical and Cognitive Skills, (b) between Physical and Affective Skills, and (c) between Physical and Social Skills

The unavailability of appropriate social skills data due to the technical difficulties of video-recording all participants simultaneously made it impossible to perform correlational analysis between physical skills and social skills. Nonetheless, the two

remaining correlations between physical skills and cognitive skills and between physical skills and affective skills were determined

Although it was expected that a high physical score would be correlated with a high affect score or that a high physical score would be correlated with a high intelligence (performance subscale in the WISC-R or WAIS-R) score, few such relationships were found. An examination of raw data revealed a scattering of high and low physical skill scores and cognitive skills and high/low physical scores and affective scores for children. Similarly, a scattering of high and low scores was seen in Physical 1 Test scores and cognitive skills scores and in Physical 1 Test scores and affective scores for adults, a scattering of scores was seen in Physical 2 Test scores and cognitive scores for New Denver exercisers, and a scattering of scores was seen in Physical 2 Test scores and affect scores for Nakusp dancers

Nonetheless, two findings were significant and confirmed the expectations that some physical skills were related to cognition and affect. In particular, it was found that an increase in Physical 2 Test skills (i.e. increased joint mobility) was associated with increased cognitive skills in the WAIS-R performance subscales for Nakusp creative dance adults, whereas a deterioration of Physical 2 Test movement was associated with decreased depression for New Denver adult exercisers. However, when a correlation exists in one small group and not another small group and there appears to be no explanation for it, one needs to acknowledge that it is not a strong finding.

5.6. Observational Issue 1: Examining Whether Creative Dance would Increase Dance Knowledge, specifically, that the Dance Participants would Learn more about (a) Moving Body Parts, (b) Locomotor Movements, (c) Body Alignment, and (d) their Spatial Environment at the end of the Dance Program compared to the Beginning of the Dance Program

This study partially supported the stated or implied assertions by dance educators (i.e. Barlin & Barlin, 1971; Gilbert, 1992; Humphrey, 1987; Parker et al., 1988) that participating in creative dance increases dance knowledge by learning more about moving body parts through explorations in nonlocomotor and locomotor movements and by learning about the spatial environment through creative dance explorations of "big/small" and "directions/pathways" with props. However, there was no support for the conclusion that participating in creative dance increases dance knowledge by learning about body alignment as no dancer adjusted his/her own body alignment during the dance classes in the 12-week program.

5.6a. Moving Body Parts

Specifically, participation in creative dance was able to stimulate an increase in the variety of movements made by all dancers, an increase in the number of body part movements in adults but not in children, and an increase of accurate locomotor movement executions by children but not adults. Despite physical limitations in

movement abilities due to observed respiratory difficulties, a lack of balance, and general joint stiffness. creative dance offered adults an opportunity for a wide range of gentle movement explorations resulting in an increase in the number and variety of nonlocomotor body part movements and an increase in smooth movement executions and circular movement patterns. On the other hand, such a dramatic increase in the number of body part movements was not observed in children because they showed no limitations in being able to move various body parts and kept pace with the dance instructor throughout the dance program. Changes were observed in the child dancers' movement qualities, however, as they began to move with greater fluidity and spontaneity in response to rhythmic musical changes. These changes plus an increase in the variety of nonlocomotor movement explorations suggested the children were increasing in dance knowledge over time.

The size of the dance space had an impact on the children as children in the intergenerational class danced with more expansive actions in the gym.

Nonetheless, they still danced less wildly and less exuberantly than the children in the children's only class suggesting the experience and expectations of dancing carefully with the elderly may have transferred into the larger setting even without the presence of these adults. Having more room to dance when children were present did not change the movement qualities of adults as they did not display more expansive movements. However, they took longer to respond to movement pattern changes suggesting that they had been relying on movement cues from the children to help guide them through the changes in movement patterns. It could be

speculated they were initially relying on the children to act as guides if they were confused or could not see or hear directions. Nonetheless, by the fourth week the adults had become more self-reliant and were less confused as they could keep pace with my leadership in the dance movements and they no longer needed reminders that they were in a dance class. Over time, they expanded their movement repertoire by moving more body parts in a greater variety of patterns and rhythms and by the ninth week they had begun to move more smoothly.

The observations suggest there may have been interactive modelling between the children and the adults in the intergenerational class. For instance, the adults tended to model quiet behaviour to the children and to wait for the children to model creative movement cues before dancing, supporting Bandura's (1977b) theory of modelling behaviour. In time, the repetition of various movement patterns seemed to become familiar to the seniors and they no longer needed as much guidance from the children. Interestingly, the quiet behaviour modelled by the adults also seemed to be internalized by the children as evidenced by their quiet behaviour during the creative dance sessions without the adults.

5.6b. Locomotor skills

To ensure safety, adults were not expected or requested to participate in the performance of locomotor skills and although they watched the children perform it is unknown whether the adults experienced an increase in dance knowledge as they

could not demonstrate or communicate their base line knowledge and/or any changes in knowledge throughout the following 12 weeks. The children, however, did demonstrate their abilities, revealing that they had already mastered walking, running, skipping, and sliding prior to this dance program as they could execute these locomotor skills correctly from their first exposure in the dance class. All children in both classes improved in their jumping skills and children in the children's only class improved in their hopping such that by the seventh week, everyone was jumping and hopping correctly. Children in the intergenerational class improved in spinning but this is a more difficult skill to execute with control and apart from week 4 when all video-taped children in the children's only class spun correctly, correct skill execution by all the children was not seen again in the dance program. No improvements were seen in star jumping, galloping, and leaping. However, in this creative dance program not a lot of emphasis or time was devoted to learning specific locomotor skills as the focus was on self-discovery through movement explorations. The lack of focus on teaching specific locomotor skills may partially explain the lack of noticeable improvement in learning some locomotor skills. Overall, children tended to lose focus and become restless when waiting for their turn to perform the locomotor skills, particularly when locomotor sequences were introduced. Children in the intergenerational class were less distracted and tended to quietly await their turn by watching each other perform and were able to perform with less coaching than children in the children's only class. Perhaps the vigilance and patience the children in the intergenerational class developed when dancing with adults had transferred to each other because they demonstrated a willingness to

watch one another and quietly wait their turn to perform, whereas the children in the children's only class were more intent on pushing one another in the line up. Performing in front of the adults who responded by clapping may also have inspired confidence or motivated the children in the intergenerational class to perform and watch to the best of their ability. On the other hand, the children in the children's only class did not have an adult audience to inspire or motivate them to perform to the best of their abilities. Although the children performed for each other and watched each other perform, the observations of this study would suggest that contemporaries do not seem to have the motivating effect generated by adult audiences. Past experience as a dance teacher who has held many dance concerts would support the latter idea, namely, that during times of public performances (which always included adult audience members), children are motivated to dance at their best skill level and to be on quiet attentive behaviour while waiting their turn to perform.

5.6c Body Alignment

It is unknown why students could adjust their body alignment by following my movements of moving a hand up over the midline of the torso and chin while breathing in and brushing the hand down over the midline of the torso while breathing out, but did not adjust their alignment without my guidance. It is possible that a cue, a reminder that body alignment is always done when preparing to dance, was consistently needed. Perhaps more verbal explanations and/or positive

reinforcements of correct body alignment and/or verbal reminders to adjust their body postures would have developed an observable demonstration of self-initiated body alignment. Although possible, it seems unlikely that the children did not understand the concept of correct body alignment because the school teacher of the children in the intergenerational class observed improved postures by several children during regular school hours. However, it is possible that the children and adults did not remember to adjust their body alignments during the dance class as they were concentrating on the various tasks and activities assigned to them rather than thinking about their body postures.

5.6d. Spatial Environment

Dancers increasingly discovered movements without my prompting, increased their variety of expressed movement qualities, and increased their willingness to try new ideas. These observations were noted in: (a) all participants exploring "big/small" and "directions/pathways" when using props, (b) all children exploring "high/low" spatial levels, and (c) some adults and some children exploring directions and pathways through imagery, hand-drawn movement patterns, and "smooth/jerky" movement explorations.

Throughout the years of teaching creative dance, I have observed that when nondancers are first exposed to creative dance explorations, there is a tendency to follow the teacher's actions. This tendency was also observed in the current study

when participants explored nonlocomotor movements. In other words, bending, stretching, turning, twirling, twisting, spinning, and swinging were explored more often when following me on week 1 and following my motions with pipe cleaners. As the dancers became more familiar with creative dance explorations, they became more expressive which was a similar response observed in the Rossberg-Gempton (1994) study. The type of creative dance also influenced the creative dance response. For instance, for adults the abstract concept of "rising and falling" produced more creative dance explorations and for children the imagery of dancing like birds produced more creative dance explorations. "Painting", a concrete form of imagery, produced the least amount of creative dance explorations as the motions tended to be limited to "mimed" up and down brush strokes with one arm.

That all dancers were not as expressive when dancing on their own on week 4 compared to week 1 when they copied my creative dance spatial explorations indicated that dancing without a leader to follow was challenging for many of the dancers. The tendency for adults to continue following my actions each week but with greater expression and expansiveness than on previous weeks, suggested they were becoming more limber and felt more at ease with moving their bodies. Apart from different group dynamics, it is unknown why children in the children's only class decreased in creative dance spatial explorations (directionality, range, and size of motions) until week 8 and then improved, whereas children and adults in the intergenerational class decreased in creative dance explorations until week 4 and from then on steadily increased until the end of the program. Once they embraced

and expressed their own spatial explorations, the tendency for children in the children's only class to be more expressive than the children in the intergenerational class may have been due to the larger dancing space available to the children in the children's only class. However, it is more likely that the children in the intergenerational class followed and internalized the more subdued spatial energy of the adults as they kept these movement qualities when dancing in the larger space. That dancers tended not to expand their movements beyond simple brush-like actions in the painting activity but explored a variety of spatial actions and movement qualities (e.g. suspension and release) for the "rise/fall" activity, shows that an abstract concept, such as "rising/falling", was more conducive to spatial explorations than a concrete concept, such as "painting". Combining abstract and concrete imagery (i.e. pretending to be flying birds) and the increased familiarity of exploring their spatial environment may explain the increased spatial explorations by the children on week 12.

By increasing movement explorations of big and small movements in high and low spaces, and by dancing in more directions and pathways, most dancers demonstrated an increased knowledge of their spatial environment at the end of the creative dance program compared to the beginning of the dance program. By dancing close together or far apart from other dancers, the dancers demonstrated a knowledge of this concept.

An increase in the variety of qualities when exploring "big/small" movements by all

dancers may be explained by the increased familiarity of exploring various ways to express a simple movement concept. In the senior's only class, the absence of children is a plausible explanation for the increased animation and the expression of personal movement dynamics. By having their own class without the children, the seniors were not stimulated and/or distracted by the increased energy and movement variations generated by the children and were able to focus on my instructions and explore their own movement qualities. The memory of riding horses, evidenced by comments and actions of the seniors and the tactile stimulation of my hands may explain the seniors' enthusiastic enactment of "riding a horse in a field". The tactile and visual stimulation of the scarves generated some personal variations in movement during "pathways and directions" explorations. Getting accustomed to the routine of the dance class and the energy level of the children was demonstrated in the intergenerational class by the gradual increase in the amount of time spent in active participation, the variety of expressed movement qualities, and the observed increase in the ability to stay focused on the tasks by the seniors over the 12-week program. Overall, the directions and pathways exercises with props prompted many self-directed or "follow the leader" movement explorations by the seniors which supports observations by other creative dance instructors and movement leaders that props can stimulate creative dance and movement explorations in elderly adult dancers (Caplow-Lindner et al., 1979; Garnet, 1982).

The reason for an increase of high, middle, and low spatial level explorations by children in the children's only class, and a decrease in the number of levels explored

(from exploring all three levels to only dancing in the middle level) by children and adults in the intergenerational class is difficult to explain. It is possible that the children in the children's only class had more room to explore all three spatial levels in the gym but it is more likely that the children in the intergenerational class tended to match their adult dance moves by decreasing their movement variability to reflect the more limited adult movement explorations. An explanation for adult and child dancers demonstrating the greatest variety of spatial explorations for directions and pathways is that they were encouraged to explore "direction/pathways" in several different ways including self-explorations, imagery with props, hand-drawn patterns, and different movement qualities. That the children were most expressive and creative when using props, especially scarves, was likely due to the tactile and visual stimulation provided by the props, that the adults were more expressive and creative when exploring jerky movement patterns was likely due to the familiarity of this movement quality.

5.7. Observational Issue 2: Examining Whether Free Flowing Movements and Pantomime with the Dance Teacher would (a) Encourage the Expression of Feelings Through Movement, (b) Increase Nonverbal Communication, and (c) Increase Memory for Movement Sequences or Patterns

It was observed that free flowing movements and pantomime (a) encouraged the expression of feelings through movement in most participants, (b) increased

nonverbal communication in most children and a few adults, and (c) increased memory for movement sequences and patterns in children in the intergenerational class. These observations partially supported the previous observations by dance educators and dance therapists (e.g. Barlin, 1979; Garnet, 1982; Humphrey, 1987; Parker et al., 1988; Rossberg-Gempton, 1994).

5.7a Expression of Feelings

That adults could express emotions more easily through facial expression without a story line or music may have been due to few stimuli being present so adults could focus on expressing emotions. On the other hand, children expressing more emotions through body and facial expression in response to a story line and music may have been due to the children's natural tendency to react expressively to stories and music. That the children in the intergenerational class tended to perform more quietly and gently than children in the children's only class could be explained by the quiet nature of the adults being transferred to the children in the intergenerational class.

5.7b Nonverbal Communication

Although adults performed dance concepts, they displayed no growth in interpreting the nonverbal skills when they were audience members. Miming activities elicited even less active involvement as adults tended to watch the children or participate

minimally in the miming activities. These results may be explained by the nature of the tasks. For instance, as fewer actions were necessary to perform the dance concept word pairs than the miming activities, it may have been that the latter activities were too complex or challenging for the adults to perform. That the adults did not respond verbally to interpreting the actions and mimes may have been because they were not able to see the actions clearly enough or did not have the verbal cues to interpret the visual images they were seeing.

Continued exposure to performing and interpreting dance concept word pairs and mimes may explain the increase in children's nonverbal skills. Specifically, their ability to concentrate (evidenced by watching intently), to correctly interpret the dances and mimes of others, and to accurately perform planned actions increased. These findings support Freyberg's (1973) assertion that social development, such as increased communication skills, increased spontaneity and creativity, and increased attention span, can be enhanced through imaginative play, in this case, mime and creative dance. The different dynamics of each class were evident in the manner of performing mimes as children in the children's only class tended to perform simple mimes in the magic stick activity whereas children in the intergenerational class tended to perform more complex mimes. Similarly, children in the children's only class needed more coaching in the rather complex kite flying activity whereas the children in the intergenerational class needed less coaching and helped guide their adult partners. Differences in group behaviour can be explained in two ways. Perhaps having the responsibility of guiding the adults made the children in the

intergenerational class more attentive to directions than children in the children's only class, or perhaps the children in the intergenerational class were more inclined to understanding, interpreting, and performing complex movement ideas than children in the children's only class.

Although adults did not show growth in interpreting nonverbal planned activities, it appeared that creative dance stimulated an increase of spontaneous nonverbal communication in adults. For instance, throughout the weeks, increases were observed in adults harmonizing their actions with the children's actions, clapping after the children performed, and hugging, hand-shaking, or waving good-bye to the children at the end of the lesson. These observations imply that a less formal approach with respect to activating nonverbal skills is more appropriate for elderly adults as they have already acquired a lifetime of these skills as opposed to children who are still in the process of learning and refining nonverbal skills and cues.

5.7c Memory

That free flowing movements and pantomime increased memory for movement patterns in children of the intergenerational class but not for the adults in the intergenerational class or for the children in the children's only class may have been due to the children in the intergenerational class taking responsibility for learning movement patterns in order to guide the adults who often relied on the children's cues in the various activities. Children in the children's only class did not experience

the opportunity to take such responsibility and tended to improvise movements rather than learn specific patterns or simply followed my verbal cues.

Using scarves, balls, and hoops created excitement and some chaos in both dance classes and it was observed that most seniors became very animated and alert. Perhaps the tactile and visual stimulation as well as the children's excitement increased the adults energy level and participation. Certainly dancing with a big bright yellow ball marked the turning point for one elderly senior in that she became and stayed alert for each class following her exposure to this yellow ball. The reason for this change remains a mystery. That the props taught children in the intergenerational class to dance with patience and to show tolerance towards persons with special needs was observed in the extra gentle manner they performed the hoop dance with the seniors. Dancing with props did not have this effect on children in the children's only class. However, these differences may have been due to the instructions given to the children in the intergenerational class to dance more gently in order not to hurt seniors whereas children in the children's only class did not have such a responsibility. Generally, the children in the children's only class approached the group prop activities more noisily and with less interest to perform sequences as directed. This reflected their more boisterous, spontaneous approach to tasks. Furthermore, their need for constant coaching suggested that the children did not remember the dance. However, few children followed the verbal instructions, so the possibility existed that they might have remembered the dance but had become caught up in the excitement and fun of bouncing the balls rather than

dancing, the sequence correctly. Overall, the observations seem to suggest that the presence of the frail elders changes the creative dance experience for children as they tend to take on more responsible leadership roles, become more attentive and make an extra effort to learn and remember the dance/mime sequences in order to "teach" or lead their adult partners. This finding supports Gilbert's (1992) statement that creative dance can enhance social development with respect to leadership skills.

5.8. Observational Issue 3: Examining whether Listening and Responding to Music will Enhance Self-expression and Creativity

For most dancers, music sometimes enhanced self-expression (exploration and discovery) and the selecting and combining components of creativity supporting observations made by music educators (e.g. Andress, 1991; Jalongo & Collins, 1985). Music did not enhance the sequencing components of creativity; however, sequencing was not noted at any time so perhaps the students had not had enough exposure to creative dance or the children were not "mature" enough and the adults were not ready to experience this aspect of creativity. It often took adults longer to respond to movement suggestions than children, perhaps due to unfamiliarity with the dance concepts or to an unwillingness to actively participate and preferring to watch the children. Music with stronger, more obvious rhythm changes and varying dynamic qualities prompted more dancers to respond more expressively, creatively, and with greater musicality than more subtle music. For instance, appropriate

creative responses were produced by all dancers in the "heavy/light" activities, by most dancers in the "dance/freeze/melt" activities, and by most children in the children's only class in the "bend/twist" and streamer dance, but the music did not enhance or inspire creativity for "big/small" moves.

Different interpersonal dynamics in each creative dance group had an effect on the types of movement responses. For instance, the "heavy/light" concept inspired heavy feet and light arm actions in the intergenerational class and light upward twirling moves and heavy swinging-swaying sinking into the floor moves by children in the children's only class. Interestingly, the adults and children seemed to form a strong symbiotic movement bond whereby the children dropped to the floor while the adults dropped their torsos forward and then the children rose to their feet and extended their arms overhead as though being pulled upwards by an invisible string of energy as the adults sat up and raised their arms overhead. These movements were spontaneous, unrehearsed, and powerful as they matched the music dynamics. It is unknown what force drew the dancers together in such a manner. The children in the intergenerational class were not as responsive to the "dance/freeze/melt" and tended not to show as much diversity or creativity as the children in the children's only class who could easily reflect any musical rhythm, from smooth meandering music to bouncy light effervescent music. Although most dancers in the intergenerational class could dance in jerky rhythms, flowing soft music seemed to be more challenging. These varying abilities reflected the general attitude or dynamics of the two sets of class members; namely, the dancers in the

intergenerational class tended to move in bouncy and/or jerky movement patterns rather than in smooth flowing movement patterns whereas the children in the children's only class fluctuated between energetic bouncy waves of energy and smooth ever flowing bands of energy. Children in the intergenerational class tending to reflect the movement patterns of the seniors may explain why jerky movements were most dominant in the intergenerational class. With the exception of sombre music, which produced the least creative movement response for the "big/small" and "bend/twist" movement concepts, the music had a powerful impact in facilitating movement exploration when the dancers were requested to express a given dance concept

Imagery and music together produced the most self-expression and creativity for "rise/sink" and "swing" for all participants and produced the most self-expression in "scatter/gather" and "painting" for most participants. The streamer dance provided a concrete, tangible object to inspire various movement patterns in space. Sinking in mud and rising as smoke inspired all dancers to dance creatively. Without the imagery to provide a focus, the dancers became very active and noisy and did not respond to the musical changes - probably because they could not hear the music. The imagery of riding on a roller coaster, swinging in a hammock or trapeze produced appropriate suspension and release movements. Without the imagery, dancers tended to copy my suspend and release movements and expressed some of their own movement dynamics but did not fully embrace the musical changes - possibly because they were copying me rather than exploring their own rhythmic

suspend and release responses to the music. Perhaps the "rise/sink" and "swing" concepts were too difficult to dance without imagery or perhaps the dancers preferred to respond to both imagery and music rather than just music.

The painting exercise was done with perfect synchronicity to the music even though children in the children's only class and intergenerational class members explored different movement dynamics. The streamer dance sparked distinctive movement styles and dance qualities in all dancers even though they copied my movement patterns. That the children in the children's only class were most responsive and creative with the streamers was evident when they spontaneously explored different nonlocomotor actions and three spatial levels without my prompting. It is possible that these children preferred concrete visible patterns - certainly they were very inspired and motivated to dance which was demonstrated by their enthusiasm and the variety of patterns they created with the streamers. The influence of dancing with seniors was reflected by the more subdued and less creative explorations by the children in the intergenerational class.

Overall, the findings seem to confirm that there were two distinctly different dance groups and that there was a set pattern and standard of decorum within set limits in each dance group which was reflected in their dance style and movement response to the music and dance concepts. These differences may reflect that the children in the intergenerational group experienced some spatial confinement when dancing with the seniors and that the influence of dancing with the seniors was generalized to

other situations

5.9. Program Evaluation

5.9.1 Children: Intergenerational Class and Children's Only Class

That children in both classes reported feeling happy, enjoyed the dancing, and felt some improvement in tension, socialization, and the ability to perform locomotor skills is consistent with my observations and indicated that the creative dance program was successful and appropriate for this age group of children and did not require major adjustments

5.9.2 Adults: Intergenerational Class

Self-reports by the adults indicated that creative dance was viewed as being emotionally, socially, and physically beneficial. A decrease in stair climbing was noted at the end of the program; however, most elderly participants pointed out there was no opportunity to climb stairs as there are no stairs at Halcyon Home and they had seldom left the premises. This latter comment implies many seniors had increased in cognition and alertness because they had failed to report the absence of stairs midway through the program but had not hesitated to clarify and explain their answers at the end of the program.

Few reports of changes in optimism, tiredness, confusion, concentration, sleeping, bending, standing, walking, sitting, or writing indicates that while the creative dance program had positive benefits, there were limits in how much improvement could take place in 12 weeks. Nonetheless, that the adults were able to participate in the creative dance classes and reported an enjoyment of dancing with props and children, moving creatively, listening to the music, and meeting people was consistent with my observations that the creative dance program was appropriate for these elderly participants and provided opportunities for them to experience positive physical, emotional, and social interactions with each other and with the children.

5.9.3 School Teacher's Evaluation: Intergenerational Class

The intergenerational school teacher's report of improvements for most children in all physical, social, and affective categories supports the idea that learning creative dance with seniors had a positive affect on the children during the creative dance class as well as the regular school day. Additional comments by the teacher such as children becoming more gentle and/or relating well with the seniors, feeling more comfortable around the elderly participants, growing in confidence, and being willing to try new things agreed with findings by the coders. Thus, the teacher's observations not only confirm the coder's findings about physical, social, and emotional improvements but also provide information on the transferability of physical, social, and affective improvements from the dance sessions into the regular classroom activities

5.9.4 School Teacher's Evaluation: The Children's Only Class

The absence of seniors in the children's only class may have been a contributing factor for the lack of physical, social, and emotional changes after class being reported by their teacher. Unlike the children in the intergenerational class who took on the responsibility for guiding the seniors through the dance activities and received warm approval and encouragement from the seniors, the children in the children's only class did not have the opportunity to develop such a responsibility and did not transfer any of the skills they may have gained. Thus, it would seem that the presence of seniors may be instrumental in transferring positive learned behaviour to other situations. Nonetheless, the teacher's additional comments revealed that positive changes occurred within the creative dance class as some children enjoyed and/or were interested in dance, some children participated well alone, and some children participated well in everything. By the end of the program, most children were participating well, were showing a willingness to work in groups, and were cooperative and creative indicating that creative dance was instrumental in providing positive experiences. That a few children preferred to work alone, continued to show behavioural problems, and occasionally exhibited silly behaviour or were easily distracted indicates that some children in this class may have been less mature and more outwardly expressive and exuberant than the children in the intergenerational class. As the limited behavioural changes reported for the children's only group may have been due to the short duration of the program (12 weeks), an extended length may have more effect on these "harder-to-reach" children that take longer to process

and exhibit behavioural changes. Future research could investigate this issue.

5.9.5 Nursing Staff Evaluation of Adults in the Intergenerational Class

Nurses reports provided information regarding the physical and mental condition of the adults and indicated that for most frail adults, creative dance was instrumental in actively engaging them in activities that provided physical, emotional, and social stimulation. No improvements in appetite, sleeping habits, bladder control, mobility, and coordination but improvements in posture, flexibility, self-image, alertness, attitude towards staff and other residents, and an alleviation of attention demands and anxiety symptoms in some adults provided insight about the limitations and impact of the creative dance program upon the daily living of the adults.

5.9.6 Summary of Program Evaluations

It appears that from the view point of most participants and staff members, the dance program was appropriate to the needs of the participants, was successful in stimulating physical movements, emotions and/or social change within the dance setting, and that these changes transferred beyond the creative dance setting for some of the intergenerational dance members. The similar reports of positive experiences generated from creative dance activities found in the children, adult, and staff evaluations and the consistency of these reports with my observations suggest that creative dance had a positive impact on the participants. Furthermore, these

reports were similar to field observations reported by other dance educators that creative dance can help child and adult participants feel happy and less tense (e.g. Barlin, 1979; Caplow-Lindner et al., 1979; Garnet, 1982), can enhance motor skill performance (Parker et al., 1988), and can promote fun in an intergenerational venue (Mason-Luckey & Sandel, 1985). Thus, creative dance appears to be a valuable instrument for stimulating or enhancing physical, social, and/or emotional growth in youngsters and seniors alike and would certainly warrant further investigation. Finally, although program evaluations were conducted for formative reasons, given the consistent and supportive findings from these evaluations, it would appear advisable for future research to make use of program evaluation data as a systematic check on the validity of the impact measures.

5.10. Observational Section: Additional Themes

As stated in the results section, the classification of information gathered in the field notes (journal entries) and video-tapes revealed several additional themes, including: (1) pedagogical issues, (2) reactions to breathing/relaxation exercises, (3) attitudes towards the dance experience, (4) observations of participants, behaviour before dance class, and (5) observations of participants' behaviour after dance class. Each theme is discussed separately below.

5.10.1. Pedagogical Issues

It was observed that the use of modelling (physically demonstrating skills) as well as verbal instructions accommodated various learning styles. Pacing the class in response to student abilities (i.e. alternating between active and passive participation by adults), responding to student needs, encouraging participants to tolerate differences, and challenging their capabilities increased the success and motivation of the students as evidenced by increased active involvement by the seniors, the increased ability of all students to perform more complex movements, and the increased ability of all students to keep up with a slowly accelerated pace of dance activities over the 12 weeks. A positive and productive teaching/learning environment was created and maintained by emphasizing student strengths, rewarding positive behaviour with praise, providing enjoyable and stimulating dance activities, turning negative behaviours into positive ones, and having disruptive students watch or dance at the periphery of the dance group. Capturing and maintaining attention was achieved by the use of several techniques including saying "lights, camera, action", standing next to children who were not paying attention, calling out "freeze", asking the children to dance quietly, or sitting very still until all the children focused their attention on me and listened while I repeated instructions several times. Shifting the focus of the activity enabled particularly fidgety or inattentive students to refocus and become attentive again. Finally, dancing in an imaginary bubble that was initially introduced to encourage safety (i.e. avoid bumping into other dancers) met with resistance so the idea was scrapped. However, after a

collision between two boys the idea was reintroduced. This time the children were informed they could step into and out of their bubbles whenever they wished and the students reacted receptively. Perhaps in the initial exposure to the bubble idea, some children had visualized the bubble imagery too literally and were afraid to dance inside a big bubble but after being told the bubble could prevent collisions and by ensuring them that they could step into and out of the bubble at will, they may have lost their fear or reluctance and willingly participated. It was also observed that once the idea of dancing in a bubble was accepted, the children began to explore additional imagery suggestions such as dancing as if they were bubbles and they seemed to enjoy the self-created sensations of hovering, floating, and popping that accompanied this enactment.

Overall, upon reflection on my teaching style, I discovered that my past experiences of performing in malls and at schools had taught me how to draw a crowd and keep an audience's attention. Without realizing it, I had automatically drawn upon these strengths in my teaching and had intertwined methods of entertaining with methods of teaching to keep the participants actively or passively engaged in the various dance activities.

The previous examination of pedagogical issues that arose in this study illustrated the importance of teaching style in ensuring a successful dance program. Other factors must also be considered including:

- a.) emphasizing the process (in which the teacher and student are both

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decision makers) rather than the product (Davis, 1980; Dickinson & Travis, 1977; Ellfeldt, 1976; Gallahue, 1976; Leventhal, 1980) thereby motivating dancers to "think and move creatively, resulting in self-discovery" (Rakusin, 1990, p 55).

b.) structuring classes safely and appropriately to avoid cardiovascular accidents or serious musculoskeletal injury (Berryman-Miller, 1986);

c.) giving directions with clarity (Davis, 1980) to avoid confusion and enhance safety;

d.) stimulating students to dance independently rather than always following the teacher (Chaiklin, 1975);

e.) observing and sharing the stylistic or rhythmic uniqueness of class members (Dickinson & Travis, 1977);

f.) allowing opportunities to transfer leadership to various group members (Chaiklin, 1975);

g.) communicating reasonable expectations of student abilities and accepting and valuing individual differences, interests, and abilities (Gallahue, 1976);

h.) maintaining flexibility with respect to responding to changing student needs and abilities; and

i.) providing positive, stimulating environments, sharing knowledge and excitement and showing genuine feelings and respect to enable students to define themselves through dance in terms of movement in order to assimilate information and make new discoveries (Huskey, 1979).

Based on the observations of this study, it is recommended that future creative dance classes use a variety of music because music may trigger initial movements (Curtis & Ptashek, 1988) and/or increase the variety and range of movement (Garnet, 1982), may evoke past memories and experiences (thereby stimulating the mind), and may be an emotional outlet leading to social enjoyment (Caplow-Lindner et al., 1979). Furthermore, as all participants in this study had varied responses to dance activities they enjoyed the most, it would appear that variety in dance content is another key to a successful creative dance program.

5.10.2. Reactions to Breathing/Relaxation Exercises

The finding that breathing exercises promoted correct body alignment and quietness in most participants supported Caplow-Lindner et al.'s (1979) assertion that "correct breathing is specifically related to improved posture" (p. 109). The finding that breathing and imagery in the relaxation exercises decreased physical enactments of the imagery and promoted a quiet calmness in most participants supported similar observations by Barlin (1979), Murdock (1987) and Van Zandt and Lorenzen (1985). In particular, the observed gradual subsiding of physical actions and increase of relative stillness and quiet behaviour over several weeks during the tree swaying and waterfall imagery may have been due to participants internalizing the imagery or due to the self-imposed protocol of sitting quietly. The relaxed postures and alert appearance of adults after the relaxation exercises seemed to support the idea that relaxation exercises can release muscular tension (Arnheim & Sinclair, 1979; Garnet,

1982, Jacobson, 1964; Shallcross & Sisk, 1982) and instill feelings of rejuvenation and vigour (Caplow-Lindner et al., 1979). Jacobson (1964) reported that muscular contraction requires the heart to work harder and that progressive relaxation decreases muscular tension which decreases the amount of effort required by the heart which, in turn, lowers systolic and diastolic blood pressure and may explain why the dance participants, especially the adults, appeared more alert, rested, and invigorated after the relaxation exercises. No blood pressures were taken in this current study to confirm or refute this explanation. A connection between flow of breath, body posture, and movement such as tense bodies being associated with awkward uncoordinated jerky movements and shallow uneven laboured breathing (Barlin, 1979) was partially substantiated when it was observed that adults who usually moved jerkily began to move more smoothly during the relaxation and imagery exercises. Other claims have been made regarding the benefits of relaxation and imagery such as relaxation increasing the range, stamina, and fluidity of movement (Rackoff, 1988) and imagery helping to unlock creativity, to reduce stress (i.e. anxiety) and to provide a focus and means of attention - which are prerequisites for listening and learning (Murdock, 1987). However, these claims could not be substantiated in this study. Although changes were reported by staff members such as one special needs child increasing in concentration during a particular activity, some adults and children in the intergenerational class decreasing in anxiety, and some children in the children's only class increasing in creativity, these changes were not directly linked to the relaxation/imagery exercises. Furthermore, increased exposure to creative dance in general may have contributed

to the reported changes in behaviour.

5 10 3. Attitude Towards the Dance Experience

The positive attitude between adults and children which grew from smiles and jovial remarks to playful interactions (especially when bubbles were introduced) indicated that seniors and children enjoyed each other's company and that their interactions became more playful as they experienced different dance activities. That the seniors and children spent time socializing with each other from the eighth week onwards and that they expressed appreciation for each other's efforts indicated that exposure to creative dance was instrumental in stimulating positive social interactions and attitudes across generations despite the cognitive and physical limitations of some senior dancers. Similar to observations by Mason-Luckey and Sandel (1985), the elderly praised and encouraged the children's efforts and accepted them without judgement and the children demonstrated thoughtfulness, caring, and patience to the seniors which supports the notion that these types of reciprocal social exchanges can and do facilitate a growth in social skills as well as establish a strong social bond between generations

That the seniors lost their initial reluctance to dance, stayed in the room for the duration of the class, and danced without the children on their seniors' only dance days indicated they had become familiar with the routine of dancing without the children once per week and were willing to participate even when children were not

present. That the children in the intergenerational class danced with larger movements in the gym without the seniors confirms earlier observations that the size of the dance room is a factor in determining the expression of dance movements. However, their continued quiet gentle careful manner of dancing indicated that these traits had transferred from the seniors' setting into their own setting. Finally, that the children in the children's only class eventually became more attentive, exhibited less disruptive behaviour, and were less inclined to collide with one another indicated a growth in maturity.

5.10.4. Observations of Participants' Behaviour Before Dance Class

From week 6 onwards the seniors took less time to arrive where the sessions were being held indicating they no longer needed lengthy explanations regarding the dance event that was about to take place. In other words, they were becoming more familiar with the routine of attending a weekly dance class with the children and were eager to participate. In addition, as the weeks went by, none of the seniors refused to be tested indicating they were less wary of the testing process and even seemed to welcome the opportunity to state their opinions and answer questions.

Most seniors needed weekly reminding about the pending classes and two seniors continued to hesitate before deciding to come, indicating their memories were not significantly improving. However, most seniors became more outgoing and smiled happily and followed along when I or the children came to escort them to the dance

area. It was evident that the children became less shy over time because they quickly settled into the routine of escorting the seniors to the sessions or waiting quietly in a circle in the middle of the room until the lesson began. On two occasions, near the end of the program, the children were late. On the first occasion, the adults worried but on the second occasion, instead of worrying and becoming restless, the adults independently did some breathing and stretching exercises thereby demonstrating that they had remembered various exercises and had found a positive way to keep themselves entertained while waiting for the children to arrive.

On the seniors' only dance days, I needed and received help from the nursing staff to keep seniors from wandering off while I escorted other seniors to the lounge. In time, seniors that wanted to stay after church services remained in the lounge and stayed throughout the whole dance lesson demonstrating that they were settling into the routine of joining and completing the entire dance class even when children were not present. When children in the intergenerational class danced alone, they entered the room quietly and waited for instructions indicating that the same quiet decorum that was established before the dance class began at the seniors' home had transferred to the gym setting as well. On the other hand, children in the children's only class alternated between quiet and noisy entrances to the gym indicating they could not always contain their eagerness and excitement of being in the open space of the gym. The display of more quiet behaviour in the morning than the afternoon may have reflected the dynamics of this group in that, after

concentrating on their academic subjects in the morning, they may have become restless by the afternoon and were generally less able to contain their enthusiasm and anticipation of moving in the gym.

5.10.5. Observations of Participants' Behaviour After Dance Class

Most seniors appeared alert, excited, and cheerful after class which may be evidence of the physical stimulation of the dance class increasing blood flow to the brain through activities such as dancing with a ball. Social and emotional interactions with the children could also explain the evidenced excitement and cheerfulness. Seniors remaining after class to socialize on the sixth week was probably due to the program evaluations that took place that week. However, that the seniors continued to stay behind to chat instead of rushing back to their rooms (which according to the head nurse, often occurred after events) from the seventh week onwards, indicated that they were feeling less isolated and were more familiar with each other after their interactions in the dance class. By continuing to socialize after the class had completed, they demonstrated their willingness to extend their camaraderie beyond the boundaries of the dance class. Comments by the head nurse of adults lingering after class to socialize validated my observations and reports with respect to seniors socializing after class.

The affection between the children and adults grew as they openly hugged one another and waved good-bye to each other after class. That the good-bye

handshake that I had initiated with the seniors had become a vital part of the routine was evident when no one left the room on week 5 until I returned and shook everyone's hands.

That some adults were occasionally confused or upset after class but did not know the reason for their feelings showed that some seniors did not significantly improve cognitively from participating in the creative dance class. It is possible that medications may have played a role in the occasional confusion or upset feelings but as I was not given information regarding the seniors' medications, this idea is simply speculative. Furthermore, as no indication of upset attitudes were observed during the dance class, it is unknown what triggered these occasional bouts of confusion or upset feelings after dance class. Nonetheless, these same adults returned each week to dance and occasionally left humming a tune, indicating that they also experienced positive feelings after participating in a dance class. That some adults dropped out of the dance program while others stayed indicated that despite physical and/or cognitive limitations, the seniors still had the capacity to choose whether they would participate in the creative dance program or not.

It is unknown why the children in the intergenerational class were more demonstrative in their good-byes to me (i.e. by waving or saying good-bye) than the children in the children's only class. Perhaps the hugs they got from the seniors made it easier for the children in the intergenerational class to say good-bye to me or perhaps saying good-bye had become part of the ritual of the dance class. The

possibility also exists that these children were more outwardly sociable than the children in the children's only class.

The seniors' comfort with me was demonstrated by their comments. Although the conversations were brief, the seniors were interested in communicating their opinions and in briefly socializing with me after the dance lesson. Finally, that participating in the creative dance program made seniors feel like valued members of society was confirmed when one senior dancer thanked me at the end of the program for including them in the dance research project because it made them feel important and that they were no longer isolated from the community. No such comments were made by the New Denver exercisers indicating the element of dancing with children may have been a crucial factor in decreasing feelings of isolation.

5.11. Looking at the Interconnections

5.11.1. Introduction (Summary of Findings)

Summarizing the findings, creative dance was shown to have a positive impact on physical skills, cognition, affect, and social skills. Exercise and physical education classes also positively impacted physical skills, cognition, and affect but some differences between creative dance classes and exercise and physical education classes were noted. No social skills observations for exercise and physical

education classes were made. Briefly, this study showed that creative dance,

- a.) enhanced motor skills in adults and children,
- b.) increased cognitive abilities in children but not adults,
- c.) enhanced positive affect in adults and maintained positive affect in children, and
- d.) enhanced several social skills (i.e. cooperation, communication, belonging in a group, leading, following, and being aware of others).

Similar positive emotions and self-concepts were reported by both the intergenerational class children and the children's only class children. However, only the children in the intergenerational class demonstrated the additional positive social behaviour of increased attentiveness during instructions and increased gentle tolerant behaviour. Observations would indicate that placing the children in a position of responsibility with the adults during the mutually shared dance activities stimulated these positive social behaviours.

Comparing creative dance to exercises or to physical education classes, it was found:

- a.) both creative dance and exercise increased physical skills related to walking gait and balance in adults but only creative dance improved flexibility and smoothness of movement in shoulders, hands, arms, legs, and feet;
- b.) both creative dance and physical education classes improved motor skills in children;

c) neither creative dance nor exercise improved cognitive skills (WAIS-R performance subtests) in adults.

d) both creative dance and physical education classes appeared to improve cognitive skills (WISC-R performance subtests) in children.

e) both creative dance and exercise classes increased positive emotions and decreased negative emotions in adults but more Nakusp dancers reported feeling "very relaxed" after class than before class in the first week.

f) overall depression scores were low ("mid-moderate" depression range on BDI) for the adults creative dance group and exercise group but only Nakusp creative dancers moved into the "normal range" at the end of the 12-week program, and

g) all creative dance and physical education children's groups were happy before and after class and obtained fairly high scores on the Cratty Self-concept scores throughout the 12-week program

Examining the relationship between physical skills, cognition, and affect,

improvement in physical (dance related) skills correlated with an improvement in cognitive skills in Nakusp adult dancers, a deterioration in physical (dance related) skills correlated with an increase in depression in New Denver adult exercisers. Physical skills did not correlate with the level of cognitive skills or affective skills in children

Issues based on field observations (from journal notes and video-taped dance

sessions) supported earlier claims made by dance educators. Briefly, it was observed that (a) through dance explorations the participants learned about moving their body parts and their spatial environment, (b) experiencing free flowing movement and pantomime encouraged the expression of feelings, increased nonverbal communication in most children, and increased memory for movement patterns and sequences in intergenerational class children, and (c) music enhanced self-expression (exploration and discovery) and the selecting and combining components of creativity but did not effect the sequencing component of creativity. Imagery and music together produced the most self-expression and creativity. Body alignment was copied but not self-initiated during dance classes.

Dance program evaluation at the midpoint and end of the program by participants and staff indicated that the creative dance program was successful and appropriate for the participants. Overall, children and adults reported happy positive experiences, adults noted that it was easier to relax and breathe deeply. Based on observations, both teachers noted positive changes such as increasing group cooperation during the creative dance classes but only the intergenerational class teacher noted a transference of positive physical, social, and emotional changes from creative dance to the regular school day. Reports from nursing staff confirmed some of the seniors' self-reports in physical, social, and emotional changes as well as acknowledging there were limits in how much improvement was possible in a 12-week program.

The reported additional themes provided insight into: (a) aspects of the teaching process which promoted successful creative dance experiences for the participants and (b) reactions to breathing/relaxation exercises; namely, fidgety behaviour during the exercises and quiet calmness for a few seconds after the exercises. It was also observed that happy social interactions and attentive attitudes during the creative dance classes, cheerful attitudes directly before the creative dance classes, and alert, excited, cheerful energetic behaviour directly after the creative dance classes increased over time.

Overall, it appears that the dance program was not only appropriate to the needs of the participants, it was also successful in stimulating or improving physical movements and in stimulating happiness and/or positive social interactions within the dance setting, and that these positive behaviours transferred beyond the creative dance setting for some of the intergenerational dance members. Based on these observations, creative dance is a valuable instrument for stimulating or enhancing physical, social, and/or emotional growth in youngsters and seniors alike.

5.11.2. Similarities and Differences of Creative Dance, Physical Education, and Exercise Classes

Certain learning outcomes of exercise and physical education classes such as developing body awareness (how different parts of the body can move), developing spatial awareness, developing locomotor skills (such as jumping, running, and

hopping), developing positive interpersonal skills (cooperating in a physical activity), and developing positive self-perceptions (Grineski, 1988) are similar to creative dance learning outcomes and may have influenced similar results for some aspects of the study

As I stated in the introduction, creative dance offers elements that are unique to dance and/or apart from exercise / physical education classes. In particular, the process, not the product is emphasized. By simultaneously involving the participants socially, creatively, expressively, and physically in movement explorations of time, energy, flow, and space, students can maintain or develop their own strengths as well as learn to relate to others in cooperative and imaginative ways.

While these characteristics may or may not have influenced some of the different results between physical exercise and creative dance, it was evident in this study that creative dance promoted several unique features to all dance participants that are often found in therapeutic dance. These features included:

- a) synchrony (people moving together at the same time with the same effort or making the same spatial design),
- b.) providing an opportunity to integrate, inspire, and regulate movement through rhythm.
- c.) revitalizing or stimulating persons through movement, and
- d.) creating cohesion - a social bond - through rhythmic beats, auditory and visual feedback from group members, and physical closeness (Hanna, 1988).

Touching, which can dissolve barriers of isolation (Hanna, 1988), and leading/following appeared to be strong factors in creating and increasing a social bond between adult and child dancers in the intergenerational class. As stated by North et al. (1990) the ability to lead "demands self-mastery, clarity of movement and decision, and care for the partner" (p. 94) and to lead by touch requires an ability to create subtle variations of sensitive and firm movements, whereas the ability to follow requires a "willingness to be led" (p.94) and to respond to touch.

5.11.3. Examining the Links between Physical, Cognitive, and Social-affective Goals

As with all research, there were strengths, challenges, and limitations in the current study. For instance, this study examined physicality, cognition, affect, and social skills separately but the nature of creative dance and exercise and physical education classes is that they are designed to integrate these aspects into the activities, making it difficult to discern which parts of the creative dance, exercise, and physical education classes impacted each skill. Nonetheless, when reviewing the initial physical, cognitive, and social-affective goals of the creative dance lessons and trying to ascertain links between them, it would appear that some goals and links were realized whereas others were not. For instance, several of the physical goals that were experienced in the creative dance class included:

- a.) increasing general endurance by the adults,
- b.) gaining physical skills such as improving in the execution of some

locomotor skills by the children,

c) moving with control (spinning by the children and dancing with streamers and scarves by everyone),

d) maintaining or improving in posture by the adults and by some children after class and joint mobility by the adults,

e.) improving in coordination and balance by the children,

f) increasing in anxiety by some adults and some children (as reported by staff evaluations), and

g.) decreasing in depression by the elderly, and decreasing in muscle tension through relaxation by many adults and some children.

However, an increase in muscular strength and endurance was not observed. No changes with respect to aiding digestion, decreasing constipation (for the elderly) and decreasing insomnia (in the elderly) was reported by the nurses.

Similarly, many cognitive goals were reached by some adults and most children such as becoming aware of how to move different parts of the body (demonstrated by the increased variety of movements), expressing through movement some knowledge of dance elements, remembering some dance explorations and sequences, being able to attend, follow directions, and concentrate, and demonstrating creativity in dance. However, becoming aware of body alignment was not attained.

Apart from a maintenance of rather low WAIS-R performance scores and an

observed increase in alertness after the creative dance classes, little evidence of cognitive changes were observed in the adults in this study. Provided there has been no damage due to chronic disease or cardiovascular problems, some researchers (e.g. Schaie, 1994) believe that with training, ability declines such as visual, verbal, and motor memory; spatial orientation, and perceptual speed can be reversed. As medical conditions of the seniors in this study were not revealed to me, I was unable to determine whether the limited cognitive abilities (as measured by WAIS-R performance scales) were due to disuse, medication, and/or disease. However, the general limits of abilities and exhibited confusion and forgetfulness would imply that many of these adults may have been cognitively impaired due to disease and/or medication. Nonetheless, it appeared the aging mind is very resilient with respect to reorganizing and adjusting the sense of self in response to loss. For instance, by changing their expectations and frames of reference for social comparisons (i.e. declaring they were satisfied and very happy to be in a home to have the care, food, and help they needed), the seniors had shifted their evaluation standards and this act probably helped them cope with their physiological losses. Indeed, many adults showed a remarkable resiliency in maintaining a positive sense of self and, as observed by other researchers of the elderly (e.g. Baltes, 1993), most seniors in this study did not report experiencing a reduction in the sense of personal control or well-being. In other words, they accepted their losses and learned to redirect their expectations and goals to reflect and cope with the new realities of old age and, apart from physical aches and pains, seemed genuinely contented to be in the intermediate care facilities.

Although the underlying cause of their cognitive deficits were unknown, it is known that cognitive functioning is dependent on sufficient oxygen and glucose being delivered to the brain and that in the process of ageing there may be a decrease in oxygen and/or glucose. It is also known that physical exercise increases blood flow which increases oxygen circulation and may also affect biochemical processes which produce energy and deliver circulating glucose to various parts of the body including the brain (Young, 1979). Although not investigated in this current study, increased activity in creative dance may have increased oxygen and glucose delivery to the brain, which may explain the observed alertness in some of the elderly after creative dance classes as mentioned in Section 5.10.5. An increase in oxygen and glucose delivery to the brain may also explain the increased energy exhibited by the children after creative dance classes. In addition to increased physical activity, the breathing exercises at the end of the class may have improved the circulatory system such that more "oxygen can flow into the brain resulting in more energetic and alert individuals" (Samuels, 1973, p.28). Finally, rather than simply following along in movement, the act of "pretending" done by creative dancers (but not physical education or exercise participants) exercised the mind (by imagining) and the body at the same time and may have stimulated the participants to stay alert. Issues such as these could be explored in future research.

Although the WAIS-R and WISC-R performance subtests were used to measure cognitive change, the cognitive elements of memory, spatial reasoning, and sequential patterning were demonstrated through the hpop and ball dances by many

children in the intergenerational class. The creative dance class also challenged students to think of and develop their own response ideas through movement explorations, to attend, to remember directions, and as Humphrey (1987) stated, creative dance activities also stimulated the students to solve problems (such as making up movements to illustrate "push/pull", "scatter/gather", "freeze/melt" and "heavy/light" dance concepts) at their particular level of ability. Although not measured, it is possible that gathering, synthesizing and presenting movement concepts and other ideas through dance allowed students to cultivate their logical and creative thinking skills. Finally, guided dance explorations expanded movement choices and watching others perform presented opportunities for dancers to hone their observation and communication skills all of which require cognitive processes. Thus, it would appear that much more work is required in the future to design tests which could adequately measure the cognitive processes that appear to be stimulated through creative dance activities.

A link between cognition and movement was reported by Gallahue and Ozmun (1995) who suggested there are cognitive concept components in movement. Although not measured or studied per se, the creative dance explorations encompassed some of these concepts; namely:

- a.) skill concepts - how the body should move with respect to fundamental and specialized movements (i.e. by exploring locomotor and nonlocomotor movements),
- b.) movement concepts - how the body can move with respect to dynamic

changes in effort (how the body moves), space (where the body should move), and

c.) activity concepts - where the body should move (i.e. patterns and formations)

However, some of the cognitive components in movement were not covered in this current study including: (a) where the body should move with respect to rules and strategies, and (b) fitness concepts (knowing how to gain and maintain a healthy lifestyle). Apart from the "Rain Drop" dance, this current study did not explore academic concepts - using movement with its tactile and kinaesthetic modalities to reinforce academic subjects such as math, science, and language arts which are traditionally taught through auditory-visual methods. Future studies could explore the viability of using creative dance as the medium of movement to systematically investigate all of these concepts more thoroughly.

Most of the social-affective goals of the creative dance lesson were achieved by all dance groups. Specifically, most children and adults increased or consistently demonstrated positive social skills such as cooperation, leading, following, and communicating; most child and adult dancers felt happy and self-confident; and most dancers in the intergenerational class and a few children in the children's only class appreciated the efforts of self and others in the dance program.

A link between the social-affective goals and movement was evident because

participants in movement activities, whether it was dance, exercise, or physical education classes, reported an increase in positive affect or a consistently high positive affect and participants in the dance program demonstrated positive social behaviour during the dance program activities. That the creative dance program increased positive social interactions in the intergenerational class participants, increased joint mobility and flexibility in most adults, and increased physical skills in most children, provided evidence that creative dance can perform the dual function of increasing physical skills and positive social skills and partially supported the McTeer and Curtis (1990) study which suggested that physical activity can provide a venue for social interaction as well as help keep joints flexible and muscles strong. Rather than promoting a competitive atmosphere found in many sports activities, the creative dance program in this study provided a venue for stimulating cooperative social interactions through certain movement activities such as "push/pull", using a hoop, and follow the leader identified by Nahme-Huang et al. (1979) as promoting cooperative interactions. As more incidents and types of social interactions (i.e. children showing gentleness in movement, taking leadership roles, guiding and showing patience in group work with adults and adults encouraging the children) were observed in the intergenerational creative dance than the children's only class, one can speculate that intergenerational programs have the potential to promote more positive social interactions than creative dance without the intergenerational element.

Furthermore, the systematic observations in this study seemed to confirm statements

about the contribution of creative dance to social-affective development.

Specifically, through role playing and producing a dance, participants learned about interpersonal relationships such as getting and giving group support (Chaiklin, 1975) and the importance of group effort and group membership (Humphrey, 1987, Weisbrod, 1972). For instance, similar to West's (1984) observations of dance therapy, participating in groups fostered social interactions in all creative dance classes including group decision making and problem solving, waiting and taking turns, sharing and sustaining attention, initiating and participating in dance activities and similar to Chaiklin's (1975) reports, these types of group actions sometimes translated into positive emotions by those participating and watching. The flexible group arrangements made it possible for participants to choose (or be placed) in different groups to experience new cooperative alliances and new group dynamics without the element of being on a competitive team. Furthermore, as suggested by Samuels (1973) "sharing a movement interaction... is often a means of helping people to relate to each other and to feel less isolated" (p.29). Therefore, observations would support the idea that the personal commitment to sharing in the groups, especially the gentle touching of hands and the guiding of adults through the activities, fostered trust in the children and their partners and may have been an instrumental component in breaking the barriers of isolation identified by the seniors themselves.

Besides linking physical movement to cognitive and social-affective skills, it would appear that other links also occurred such as cognitive and social links. For

instance, children in the intergenerational class learned to retain directions and provide cues or guide adult partners through creative dance activities thereby demonstrating they were able to attend, remember, and communicate directions and movement cues as well as demonstrate a growth in responsibility

5.12. The Challenges and Complexities of Research Involving Human Participants

The fabric of human dynamics is woven with many threads making it challenging to isolate and examine one aspect of human endeavour/behaviour. For instance, room size can restrict or limit movements which can affect group behaviour and dynamics. In this study, the small room size of Halcyon Home required the formation of two circles in order to accommodate everyone in the limited space. To maintain consistency, initial exercises and warm up activities were performed in a circle by the children in the children's only dance class. Although not specifically tested, it appeared that a circle formation developed group cohesion, supporting Barlin's (1979) idea that circles help participants relate spatially to a group thereby developing an awareness of themselves in space but also their "responsibility and unique contribution to the whole group" (p.110) because everyone is needed to create the circle

The small room size and close proximity helped shape the types of dance activities

as well as group behaviour. For instance, sharing props brought small groups of dancers together in a somewhat confined space and helped promote camaraderie and good humour among participants. Certainly, as suggested by Mackenzie (1988), engaging the imagination, recognizing group members as individuals to be treated with respect, and creating opportunities "to create, to laugh, and to play and to feel they are a valued member of a group" (p 74) was evident during all the prop activities in the intergenerational class and was beginning to take form in the children's only class (as some students who had more difficulty relating to one another were beginning to show better cooperation in group activities). Woodruff (1985) proposed that props can also develop kinaesthetic awareness because a prop can become an extension of the body. Although this idea was not examined per se, participants demonstrated that they had developed a growth in this type of kinaesthetic awareness because, with practice, they learned how to move in unison as one group entity in the lifting, lowering, and swaying maneuvers in the hoop dance.

These observations illustrate that human experiences are complex and unfold in a synergistic manner, making analysis of which single factor(s) specifically created certain individual behaviours or group interactions difficult to identify. Nonetheless, this study has revealed many aspects of the influence of movement, particularly creative dance, on individual and group experiences.

5.13. Proposed Physiological and Psychological Mechanisms: Possible Directions for Future Creative Dance Research

Now that it has been established that creative dance and movement can have a positive impact on a number of physical and psychological domains, we must look to possible theoretical explanations to guide future research. For instance, it may be very insightful to identify mechanisms for some specific factors, such as the enhancement of anti-depressant effects of creative dance, thereby adding to the present literature of exercise and depression. Although it is beyond the scope of this paper to explore the mechanisms in depth, suffice it to say that several physiological and psychological proposals exist

5.13.1. Proposed Physiological Mechanisms to Investigate

The pyrogenic hypothesis suggests whole body warming through exercise may enhance mood (Berger & Owen, 1987; Biddle & Fox, 1989; Martinsen, 1990). However, more studies are needed to see if this is a viable hypothesis.

The amine hypothesis proposes that three monoamine neurotransmitters, serotonin, dopamine, and norepinephrine, may play a role in the anti-depressant effect of exercise. It is believed that with increasing exercise workloads, aminergic synaptic transmission is enhanced (Ransford, 1982) and norepinephrine output increases in

an effort to maintain homeostatic functions (Berger & Owen, 1983; Ledwidge, 1980) which, in turn, could increase mood and decrease depression (North et al., 1990; Simons et al., 1985; Ransford, 1982; Markoff et al., 1982). In other words, the "biochemical and neurophysiological changes associated with oxygen uptake, muscle neuronal activity, and other metabolic processes" (Lichtman & Poser, 1983, p. 49) appear to produce sensations of positive affect. However, much is still unknown such as whether all the amines are involved equally in the antidepressant effect of exercise or whether there is an altered functioning of one of them (Ransford, 1982).

The endorphin hypothesis suggests that short term and long term exercising can produce an increase in beta endorphin activity which can create a state of euphoria (Markoff et al., 1982; Morgan, 1985; North et al., 1990; Plante, 1993) or perhaps decrease negative mood (Plante, 1993). However, the research has shown that specific endorphins that act as antidepressants still need to be identified (North et al., 1990) and that the relationship between exercise and endorphins needs further clarification.

The cardiovascular fitness hypothesis suggests that, with increased fitness, there is a decrease in depression. However, as depression decreases occur in anaerobic exercises and before cardiovascular fitness improves, it is unlikely that cardiovascular fitness plays a mediator role at the beginning of the exercise program (North et al., 1990). Although physical activity can reduce stress which increases

positive affect (Berger et al. 1993), increases in aerobic fitness do not seem to be essential for anti-depressant effects (Martinsen, 1990). Therefore, it is apparent that the amount of exercise needed to get an anti-depressant response is still unknown (Simons et al., 1985). Furthermore, as simple swinging movements and "out breaths" can create a release of tension (Bernstein, 1981) and smiles (observed in this current study), and as leaping can produce joy (Barlin, 1979), it may be worthwhile to investigate other issues underlying positive mood states such as psychological mechanisms.

5.13.2 Proposed Psychological Mechanisms to Investigate

The cognitive-behavioural hypothesis suggests feeling successful and experiencing the internal locus of control through exercise (i.e. through the mastery of various skills) can help increase accessibility of positive thoughts and feelings and help stop negative thinking/feeling patterns (Simons et al., 1985).

The social interaction hypothesis suggests group interaction from exercise decreases depression. However, exercise has been found to have a greater anti-depressant effect than other enjoyable activities (North et al., 1990), suggesting that social interaction may be an external motivator at the beginning of the program and gradually diminishes in effect as exercise (physical activity) rewards are internalized. On the other hand, other researchers such as McTeer and Curtis (1990) found social interaction to be "one of the more important predictors of well-being" (p. 341).

The time-out, distraction hypothesis suggests exercise may offer a form of relaxation or recreation distraction. However, the North et al. (1990, p.406) meta-analysis did not support the time-out distraction hypothesis because "exercise decreases depression more than relaxation (time-out) or enjoyable activities (distraction)"

5.14. Taking a Synergistic Approach: Challenges and Limitations

It is possible that rather than one physiological theory or one psychological theory providing explanations of underlying mechanisms, there may be "synergistic effects of several mechanisms" (MacMahon, 1990, p.347) to explain changes in feelings after participating in physical activity. As the focus of this study was to examine whether creative dance could enhance physical, cognitive, affective, and social functioning, it would have been premature to formally examine the underlying mechanisms of change. However, as some changes were noted, the idea of several mechanisms underlying the changes in behaviour can be proposed for examination by future research. For instance, physical activities in creative dance may have reduced tension states through alterations in brain monoamines which mediated affective changes and/or mediated cognitive associations linking decreases in tension from movement with increases in positive affect. An improvement in bodily functions such as the increases in coordination, flexibility, and smoothness of movements found in this current study, may have created a sense of accomplishment and thereby dispelled the hopeless feeling that often accompanies depression. In turn, feeling successful in the various creative dance activities may

have led participants to develop a sense of mastery (Folkins & Sime, 1981) which helped increase positive thoughts and helped stop negative thinking and feeling patterns (North et al., 1990). In the current study, noting certain physiological changes would have required measures such as urine analysis (for the amine hypothesis) or blood samples (for the endorphin hypothesis) which was not possible due to the lack of trained personnel and researchers in the community to carry out the required tasks for such analyses. Furthermore, limitations and challenges were present with adults in that it was unknown whether adults were on medication which can affect mood states. In other words, there may have been an interaction of exercise and medication which affected the self-reports of positive affect.

Challenges of another sort were presented by the children's self-reports because they were initially happy and did not show significant increases in happiness after creative dance or physical activity classes. Although this finding could support Simons and Birkimer's (1988) claim that mood improvement may be predicted by initial mood states and could support Frazier and Nagy's (1989) assertion that participants reporting high positive moods prior to an exercise program show little change after exercise training, it is also possible that the results were due to the limitations of the "happy/sad" faces scale. Specifically, many of the participants' scores were at the highest score before the exercise or dance classes began, leaving no room for improvement to be recorded after class. In order to determine whether the reason for no significant increases in positive affect after classes were due to no differences in positive feelings or due to limitations of the measurement scale, future research designs could consider using different measurement scales or

adding a comment section for participants to note additional changes in mood.

Despite these noted limitations, some changes and some links were observed between physical, cognitive, affective, and social functioning after participating in creative dance. Therefore, I agree with Biddle and Fox (1989) that it would be fruitful for future studies to investigate the commonalities or interactions of possible psychological and physiological factors (rather than predict each in isolation). Some of the challenges for this type of future research include determining which underlying mechanism or mechanisms influence behaviour and if there is more than one mechanism, whether these mechanisms interact in a synergistic manner. The knowledge gained from these investigations would likely improve our understanding of human behaviours and the interconnections of physical, cognitive, affective, and social functioning and thereby aid in the development of appropriate programs to increase and/or maintain healthy living.

5.15. Research Concerns

Balancing an empirical approach and field study approach within the same research project presented several difficulties and challenges, including shortcomings with respect to validity and group size, challenges of testing and test measures, and demand characteristics. Each issue was examined and is discussed.

5 15 1 Validity Concerns

Although there was no problem with ecological validity (because the research was conducted in a "real-life" setting and not a laboratory with countless controls), some forms of external validity (the ability to generalize to other populations) were threatened. For instance, the lack of random assignment of participants into groups makes the external validity questionable. However, as this study was not conducted in a laboratory, I was restricted by the limitations of the community environment. There were only four classes of children and two intermediate care facilities from which to choose participants. One classroom of children had such a small number of children that this classroom was not considered. Of the three remaining classrooms and two intermediate care facilities, all the Nakusp children in both classrooms, most Burton children in the Burton classroom, and many adults in the two intermediate care facilities in Nakusp and New Denver participated in the research project. With such a large percentage of these populations participating, it is reasonable to assume the results can be generalized to these types of facilities in other rural settings in British Columbia. Geographical and environmental considerations factored into the determination of which groups would participate in creative dance, physical education classes, and exercise classes. As Burton, Nakusp, and New Denver are separated by over 55 miles, it was practical and economically feasible to hold the children's only and the intergenerational creative dance classes in Nakusp. (However, as previously stated in Section 3.4, a "wait-list" condition was given to the Burton children. After completing the 12-week physical education classes and post-

testing, they participated in a one hour per session, 6-week creative dance program.)

External validity may also have been threatened from reactive effects of testing, namely, that the pre-tests made participants more sensitive or aware of the upcoming "treatment". In other words, they may have been motivated to follow the creative dance program closely to increase their physical and cognitive skills. Although some children may have practiced some physical tasks, it is unlikely they practiced items from the WISC-R subtests as they did not have access to this material. Many adults had difficulty remembering specific activities and tasks so it is unlikely they would have tried practicing for future tests. Furthermore, the activities in the physical and cognitive tests did not resemble the content of creative dance classes so it is unlikely the participants made connections between the tests and the dance class activities.

Some forms of internal validity (whether the experimental treatments made a difference in this study) were threatened. For instance, experimental mortality (or loss of participants for nonrandom reasons) was observed because a few people were lost from the study due to moving away, changing schools, choosing not to participate, or death. This means that the results may have been different if everyone had been able to complete the testing. Internal validity for children's results may have been threatened through maturation as they did better on the post-scores for physical and cognitive tests. In other words, due to their continued development, the children grew stronger and larger and thus could probably

complete the physical tests such as running, throwing, catching, and balancing faster or better at post-testing Bruininks (1978) acknowledged this possibility stating that "since motor ability develops with age...that mean point scores on each subtest would increase at successive age levels" (p.29) and that subsequent product-moment correlations between point scores and chronological age "showed the expected increase from one age group to the next" (p.29). Therefore, Bruininks (1978) provided percentile ranks within reference groups, stating that the "percentage of subjects obtaining standard scores equal to, or lower than, a particular standard score" (p. 136) gives "more useful information than age equivalents" (p. 137). The children also continued to learn more at school and general test taking skills may have improved which may have enabled them to perform the cognitive tests better at post-testing. Maturation was not a concern for adults as they had reached their maximum cognitive and physical development long ago. However, the act of taking a test teaches participants something about test performance so improvements can occur simply from understanding the procedure of taking the test. This is an unavoidable part of retesting. Unfortunately, testing effects can only be controlled by elimination of the pre-test, but this was not done because one of the objectives of the study was to examine changes which necessitated a pre-test/post-test design, given that the tests in this study (such as the BO test) do not exist in parallel form. It is unknown how much improvement can be accounted for by retesting.

As there was no random selection of participants into groups, it is possible to

suggest differences were due to initial selection bias. Although in most incidents, pre-test comparisons indicated that the comparison groups were not significantly different from each other, this does not overcome the threat to internal validity "because other unmeasured variables on which the groups differ might explain the treatment affect" (Thomas & Nelson, 1985, p.220).

Random assignment into groups can control threats to internal validity, and although this was not formally done with the study, a natural random process exists in the community when children are placed into their various classrooms. Adults were already living in one of the two intermediate care facilities and could not be switched to other groups. As membership in school classrooms and intermediate care facilities was predetermined, it is unknown how further randomization into groups could be arranged. Had there been enough participants in each school class and at the intermediate care facilities and had there been two school teachers for each intervention, it may have been possible to randomly select some participants to an alternative activity while others participated in the creative dance program. However, this opportunity did not exist in the current study because there were not enough participants, teachers, or rooms to randomly assign participants into different activities in this manner.

As this research was conceptualized as five separate studies within one large study and tests were given two or more times, within group repeated measures analyses were performed which may have controlled internal validity threats such as

maturation (as the passage of time was equivalent) and selection bias. The order of when treatments (creative dance classes) were given was counterbalanced because each dance group had an opportunity to be given a particular class lesson first and second each week. For instance, children in the intergenerational class got creative dance classes first on day 1 and second on day 2 and children in the children's only class got creative dance classes first on day 2 and second on day 1.

5.15.2. Group Sizes

It must also be noted that problems can arise from unequal group sizes and small numbers of participants within each group. For instance, there were fewer children in the physical education class. Perhaps, if there had been an equal number of children in each group, the results may have shown more significant differences between the dance and physical education class. With respect to small sample sizes in each group, it must be remembered that in order to "run experiments with any decent chance of rejecting the H_0 when it is in fact false and the effect is small" (Howell, 1987, p.206) reasonably large sample sizes are needed. In other words, similar to the Stamford et al. (1974), Barry et al. (1966), and Young (1979) studies, there may be cause to question some of the findings in the current study because, statistically, small sample sizes create the problem of giving a low power to detect between-group differences. Nonetheless, between-group comparisons were possible and were conducted. Similarly, correlational analyses were performed to determine the relationship between physical skills, cognition, and affect in these

particular adults and children

Despite these empirical shortcomings, as this research was conducted in a natural setting, other methodology was possible which helped bring additional understanding or insights. For instance, through observational research, information was gathered regarding (a) the effects of creative dance on cognition (dance knowledge), (b) the effects of free flowing movements and pantomime on expressing feelings, nonverbal communication, and memory for dance sequences or patterns, (c) the effects of music on self-expression and creativity, (d) insights regarding pedagogical issues, (e) changes in behaviour before, during, and after dance classes, and (f) reactions to breathing/relaxation exercises. Furthermore, one of the strengths in this research was the strong support by community members who enabled the project to take place and who believed in enriching the seniors and children's lives through participating in such a program. Specifically, the project was supported by the school district which required permission by the superintendent, the school board, the principals of each participating school, the teachers, the parents and their children who participated in the dance program, the residents in the two intermediate care facilities, the head nurse, the activity leader, and the family physicians of the Nakusp senior dancers

5 15 3 Challenges of Testing and Test Measures

Several recommendations have been formulated for test construction and/or test

administration based on the observations made in this current study. For instance, it was observed that open questions on the program evaluation forms required more time to answer and the answers needed to be synthesized and grouped into categories, whereas closed questions took less time to answer and were easy to score accurately. As there were few open questions, no changes regarding open questions are recommended other than adding a question about what participants did not like about the dance classes. (This would have given additional insight into future program development.) A limitation of measures with categorical responses (which gave participants two choices such as "yes/no") was the lack of other options. However, the seniors sometimes gave additional responses such as ("don't know"), or they did not respond to a question, or they clarified their answers (e.g. by stating they were not confused when asked whether they felt less confused, more confused, or the same after the sessions). The program evaluation questionnaire was rather long and contained some terms that some participants did not understand (such as "self-assured" in the adult questionnaire and "tense" in the children's questionnaire). Therefore, it is recommended that future program evaluation questionnaires are shorter without compromising clarity.

Overall, other than the problems discussed regarding the program evaluation questionnaire, the other questionnaires were not problematic. Of course, one must remember that a weakness of self-reports is that a person may give socially desirable answers. Nonetheless, examination of answers given by the participants (such as some seniors having thought about suicide on the BDI questionnaire and a

child writing the best part of the dance class was "when it's done") provides evidence that questions were answered rather candidly by some participants.

With each participant, rapport was established to make the person feel at ease during testing times. During pre-testing some of the adults rambled and I needed to guide them back to the questions. At the midpoint and the end of the program, there was less rambling (which was probably due to my increased skill in guiding seniors back to the topic and an improvement in the seniors' alertness to the task at hand) Interviewing was advantageous because it permitted me to observe how the participants responded and thereby achieve some insight into the sensitivity of the question and the feelings it may or may not have instilled in the participant, which, according to Thomas and Nelson (1985), added to the validity of the results

To reduce the chance of outliers from shorter attention spans, distraction, and lack of motivation to do the tasks, I scheduled tests to be done within reasonable time limits (by giving the cognitive, physical, and self-concept/BDI tests on separate days), I set up testing situations so there were few distractions, and I showed interest in each participant's performances (to maintain individual motivation to complete tasks to the best of the his/her ability). Nonetheless, two children were unable to complete some tests at pre-testing and post-testing and some adults were unable (or refused) to complete some pre-testing but were able to complete all the post-testing which affected the results as there were no scores for these individuals in the calculation of statistics for some empirical tests.

There were additional shortcomings because some of the standardized tests were unable to measure some of the additional observed physical and cognitive changes. For instance, although some physical skills improved for all participants, the creative dance lessons were aimed at exploring dramatic actions, mime, rhythmic responses to music, moving away from and towards the body centre, and forming and linking movement phrases. Some changes or increases in these physical abilities were not evaluated by standardized measures because no standard measures were found. However, changes in creative dance knowledge (such as locomotor and nonlocomotor skills and spatial awareness) and the creative process were observed by systematic behaviour observations in the video-tapes and journal notes and were reported. Suggestions for future research would be to devise observational standardized coding sheets that would allow an observer or a coder of video-taped dance sessions to accurately observe and note changes in additional movement responses and qualities in dancers such as learning about their bodies in rhythm, action, and stillness, striving towards and/or achieving locomotor skills, and moving in freedom and restriction. Although some coding sheets for dance exist, more clarity of categories and more categories of observation are needed in order to adequately observe and report changes in these additional dance movement qualities

Similar recommendations are made to design appropriate standardized cognitive measures which address cognitive issues of creative dance (such as dance knowledge and memory for dance patterns or sequences). It would also be

beneficial to design appropriate cognitive measures for seniors over 74 years old or to modify the present measures (e.g. providing norms for adults over 74 years old and making cards with larger pictures to enable the participants to see the details on the pictures)

Although it is important to consider the importance of devising more appropriate measures for the elderly population, it must be remembered that the elderly population is unique in that many of their peers have passed away and those that live beyond their eightieth year have different strengths and weaknesses, making it harder to find "norms". As stated by Tinetti (1986, p. 125):

"given the variability in the elderly patient population, developing a completely standard, uniform evaluation that is relevant for all patients will be difficult, if not impossible and inappropriate. Clearly, much work remains in developing techniques of observation and interpretation appropriate for complex variable functions [such as mobility]."

In the future, more sophisticated affective measures could be designed for the age group of children in this study (7 to 10 year olds). For instance, perhaps the same mood scale that was given to the adults could have been given to the children but as no previous studies were found using these scales with children, they were not used at this time

Limitations with respect to the small number of adults, the possibility of creating the "Hawthorne effect", and few resource personnel (no researcher, psychologist, or dance instructor) were previously discussed in this paper (see Section 3.18). Finally,

coding the video-tapes two and one half months after the dance program had been completed, allowed me to view the material in a more objective manner as I had forgotten many of the individual and group behaviours and responses to the creative dance activities

5.15.4 The Problem with Demand Characteristics

Rather than being a passive responder to stimuli, a participant in research studies is an active participant with his/her own motivations, perceptions, personal history, and interpretations of the situational cues. Furthermore, in a psychological experiment, the participant participates in social interactions with the experimenter whereby he/she expects to play his/her role by performing and tolerating the required actions. By participating in the research, the participant places himself/herself under the control of an experimenter and will tolerate boredom or discomfort. It has been found that a participant tends to be compliant and is motivated to continue the task, even if it is a meaningless one, as there is a tendency to attribute meaning and purpose to any given task in experimental situations (Orne, 1962). By participating in the experiment, participants tend to believe that the experiment is important and become stakeholders in the experimental outcome. Therefore, demand characteristics "the totality of cues which convey an experimental hypothesis to a subject" (Orne, 1962, p. 779) will help define the participant's role and responses as he/she attempts "to respond appropriately to the totality of the experimental setting" (p. 779). Demand characteristics are likely to be increased in repeated measures

studies (McCann & Anderson, 1987), therefore, a between-subjects design can be utilized to reduce the likelihood of attributing results to demand characteristics (Riskind, 1984). In a between-subjects design, the "differences between how subjects feel when they arrive and how they react to the experimental situation will appear as error variance" (Laird, 1984, p.913).

It is difficult to determine and eliminate demand characteristics. For example, demand characteristics might be determined by running pilot studies and asking each subject to state what he/she thinks is the hypothesis/purpose of the experiment. However, there is a possibility that the inquiry procedure may be subject to demand characteristics (Orne, 1962). Eliminating subjects who recognized the experimental hypotheses might decrease demand characteristics. However, I did not deem it appropriate to ask participants in this study about the hypotheses due to their limited understanding of the research process.

Although it is possible to decrease demand characteristics, it is impossible to completely eliminate them from experimentation. Another solution to demand characteristics may be using a different approach such as observations in naturalistic field studies. The advantages of field work include allowing the observer to (1) make observations in a natural setting, (2) describe the life, work, experience, behaviours, and reactions of people in a natural setting, and (3) to immerse himself/herself in the situation and discover things no one else had paid attention to (Cozby, 1989; Patton, 1990). However, field work brings new problems such as

being less able to control the extraneous variables or possibly losing objectivity due to the researcher becoming a participant-observer.

As no other dance teacher was available in this small community and as budget restrictions prevented the community (and me) from hiring extra personnel, I had to be both the researcher and dance teacher. This may have encouraged participants to answer in a socially desirable way but as previously mentioned, they tended to answer candidly. Several techniques were used to minimize the bias I may have brought into the research project by being both teacher and researcher and to maximize credibility with respect to the problem of juggling a dual role. As stated earlier in this paper, these techniques included using several methods of data collection (e.g. my journal observations, video-taping of several dance sessions, and self-reports of moods/emotions and self-concept), cross checking and validating the various kinds of observational data (e.g. cross-checking video-taped sessions and journal notes), employing several coders and scorers for the video-taped sessions and paper-and-pencil tests, eliciting the help of teachers and community volunteers to administer the children's physical test and the seniors' affective tests, and having an activity leader conduct the New Denver adult exercise classes and another teacher conduct the Burton physical education classes. However, whether it is empirical research or a more intuitively-based naturalistic research, it must be remembered that bias cannot be eliminated. For instance, even if the researcher pursues scientific research in a more objective fashion, "there will always be an inherent bias involved in the choice, pursuit and write-up of the research question

and results" (Theeman, 1973, p 97)

5.16. Conclusions

The conclusions in this study are based on inference, observations, or speculation and shall briefly be summarized in these categories. On the basis of inference in this study, it can be concluded.

(A) like physical education, creative dance for children

- 1.) significantly increased physical skills and
- 2.) significantly increased cognitive skills (related to WISC-R performance scales);

(B) unlike exercise, creative dance for the frail elderly

- 1.) significantly increased joint mobility and
- 2.) significantly increased positive emotions, decreased negative emotions, and increased feelings of relaxation (during the beginning of the program);

(C) creative dance and physical education:

- 1.) did not significantly affect changes in emotions or self-concept in all the children who consistently reported high average affect and self-concept scores,
- 2.) did not significantly affect changes in cognitive skills for all the frail elderly who consistently showed low average performance scores

in the WAIS-R, and

- 3.) significantly decreased BDI depression scores in the frail elderly participating in creative dance (showing a reduction in categories from "mild-moderate" to "normal" range).

On the basis of observation, it can be concluded that:

(A) creative dance positively affected social skills, in that:

- 1) all participants demonstrated cooperation, communication, and sense of belonging and children demonstrated an awareness of others.
- 2.) everyone was able to follow partners in partner work,
- 3.) children, but not adults, led partners or groups, and
- 4) children could expressively portray the dynamic changes in music by the seventh week and adults tended to be responsive to concrete movement suggestions such as riding a horse in the fields:

(B) creative dance increased creative dance knowledge:

- 1) of moving body parts through dance explorations by increasing the number and variety of movements by all participants,
- 2.) of jumping skills by all children, of hopping by the children's only class and spinning by the children in the intergenerational class, and
- 3) of the spatial environment such as "big/small" movement explorations and increased "directions/pathways" explorations by

everyone, but,

- 4) did not increase self-initiated improvements or adjustments in body alignment,

(C) free flowing movements and pantomime activities in the creative dance program

- 1) encouraged the expression of feelings through movement of adults and children.
- 2) increased most participants' ability to transmit nonverbal skills in mime but only increased most children's (but no adults') ability to interpret nonverbal skills, and
- 3) increased memory for movement sequences and patterns for intergenerational class children; and

(D) listening and responding to music enhanced self-expression and creativity for most dancers with the exception of sequencing, the ability to connect various creative dance explorations together in a repeatable arrangement.

Finally, it is speculated that:

- 1) a shift in social responsibility occurred when children and adults collaboratively created dance performances for word concept pairs, "freeze/melt", "push/pull", "heavy/light", and "scatter/gather";
- 2) creating and dancing together in groups implies that creative dance can promote group cohesion; and
- 3) an intergenerational creative dance venue contributes positively towards fostering the social skills of caring, tolerance, and respect demonstrated when

children in the intergenerational class were put in a position of responsibility of dancing in a gentle manner with seniors who needed and accepted care and guidance from their child partners.

No long term follow up was conducted so the length of the impact of the study was unknown. However, this study had value for the following reasons:

(a) an appreciation for dance and increased movement skills was observed in children.

(b) for most dance students, group cohesion and cooperation was developed and found expression through shared dance and mime activities.

(c) informal networks of support, concern, and caring were developed which promoted a positive tolerance of cognitively and/or physically challenged elderly dance participants.

(d) opportunities were presented through the activities which enabled the seniors to use extant abilities, and

(e) regardless of age, the quality of life for all the participants was enriched through participating in the program.

5.17. Benefits of Having Both an Empirical Approach and an Observational Approach in One Research Study

Despite the limitations and difficulties, there were benefits in having both an empirical

and observational approach in this current study. For instance, some empirical evidence was found for creative dance positively impacting physicality, cognition, and affect in many adult and child participants. The observational method permitted the researcher to document social changes, to offer explanations for some of the empirical results, to confirm earlier observations by other dance educators, and to provide additional unforeseen insights regarding participant behaviour and pedagogical issues. The combined results of this current research have created the opportunity for future researchers to consider developing appropriate empirical tests for creative dance participants as well as encourage the use of systematic observations in order to note the benefits and limitations of creative dance in affecting individual and group experiences and behaviour. Although there is a lack of credible testing measures for some dance observations, the goals of dance are usually of a qualitative nature, emphasizing "intuitive present-time processes" (Theeman, 1973, p 100). For instance, dance for seniors can be considered successful when it "produces a smile, a renewed interest in the present, or a small reduction of pain or discomfort" (Caplow-Lindner et al., 1979, p. 240). Furthermore, I believe that combining intuition and analysis has the potential to enrich our understanding of the movement processes in creative dance.

To summarize by combining the empirical and observational findings, it was possible to identify several benefits of creative dance including the increase in physical skills and the increase or maintenance of cognitive abilities, positive affect, high self-concept, and positive social interactions.

5.18. Benefits of an Intergenerational Program: a Venue for Prevention and Treatment

The intergenerational aspect of this study provided the opportunity for the seniors to participate with peers and with children in meaningful activities which were valued and validated by society, shown by the fact that this part of the study, the intergenerational creative dance classes, will be continued by community members. This current study supported observations by Mason-Luckey and Sandel (1985), that nonverbal, rhythmic activities provide an ideal modality for intergenerational communication and also noted that these activities offered a medium of expression for seniors who could no longer converse coherently but could still hum, clap, and keep in rhythm with the music. Rather than focusing on the product of being fit, creative dance emphasized the process of being active, of breathing correctly (which can expand the chest, erect the spine, improve posture, increase oxygen flow through the body, and decrease tension), and of relating positively with other dancers which can stimulate more positive feelings. Creative dance also increased endurance and flexibility in the seniors. Together, these experiences can enhance the quality of life.

It also appears that intergenerational creative dance classes may be considered as a venue for prevention as well as treatment programs. For instance, in this study, having two separate generations provided an opportunity to examine a "treatment"

as well as "prevention" approach with respect to the effect of a creative dance intervention. Specifically, as the seniors were living in an intermediate care home due to physical or mental declines, the assumption was made that some of the adults living in intermediate care facilities would be feeling somewhat sad or depressed so one could look at the effect of creative dance from the perspective of "treatment". As the children were participating during school hours as part of their school curriculum, the assumption was made (and subsequent data collection supported the assumption) that most of the children participating in the study were generally fairly happy and content within themselves, so one could look at the effect of creative dance from the perspective of "prevention". Over time, the adults improved in physicality, felt happier after class, and encouraged the children's dance efforts and, in return, the children demonstrated caring and respect for the seniors, thereby supporting Pransky's (1991, p 30) suggestion that a nurturing environment (in this case, the creative dance environment) could enable children to demonstrate "socially acceptable non-troubled behaviour" which is indicative of a prevention program. Although the current design does not permit one to classify this current project as a prevention study, the observations of the prosocial behaviour does set the stage for future studies to empirically examine the benefits of creative dance from the viewpoint of prevention or health promotion.

Creative dance appeared to enhance both the achievement of shared goals and social behaviours by interdependent, cooperative groups. Furthermore, as suggested by Cowan et al. (1990), it may be possible that these learned skills (of

working cooperatively towards a shared goal) may serve as a preventative intervention for the future because children may utilize these skills in their future working relationships. To explore and substantiate this idea, a longitudinal study would need to be designed. Finally, similar to creative drama, which uses role-playing followed by small-group discussions to enhance children's sense of competency, problem-solving techniques, and the ability to relate in a socially appropriate manner (Cowan et al, 1990; Walsh et al., 1991), it may also be possible to test the utility of creative dance as a treatment and prevention tool by introducing similar exercises through the medium of dance expression.

5.19. Future Investigations for Creative Dance Research

Overall, the findings in this study set the stage for further investigation of issues raised by other dance educators such as:

- a) linking muscular activity with feelings of exhilaration and a release of tension (Barlin & Barlin, 1971);
- b) discovering whether performing lets the performer experience the acceptance of peers which, in turn, can instill the feelings of confidence, enthusiasm, and motivation (Barlin, 1979);
- c) exploring whether relaxation exercises can help motivate participants (especially hyperactive children) to move slowly and quietly (Barlin, 1979);
- d) testing whether certain locomotor activities can develop laterality (e.g

slides and skips), spatial awareness (e.g. spins) and/or coordination (e.g. gallops) (Barlin, 1979).

e) examining whether creative dance can stimulate the senses that still function in the elderly (Garnet, 1982) in order to enhance or maintain the quality of life experiences;

f) comparing the effects of presenting imagery without music to presenting imagery with music in order to more fully understand the impact and power of music in a creative dance class (an issue raised by the current study); and

g) discovering the potentiality of using creative dance as a vehicle for health promotion.

5.20. Practical Implications for the Future

As was seen in this study, by jointly exploring creative dance movements, children and adults shared common experiences, created new memories, and learned to appreciate and celebrate their successes, thereby creative dance was used as a catalyst to form strong physical, social, and emotional bonds with their peers across the generations. As a community project, this study was worthwhile pursuing as it was accepted by the participants and the caregivers/teachers. Furthermore, the results of the study acted as a catalyst for future intergenerational creative dance programs because, after reading the results of the study, I was informed that the activity leader in the intermediate care facility in New Denver plans to introduce a similar program to her community.

As suggested by Dickinson and Travis (1977), it is believed that continued explorations in creative dance by the elderly can rekindle past patterns of movement and personal rhythm and that continued explorations in creative dance by children can be a discovery of their uniqueness. As observed in the current research project, for all participants, creative dance can be a journey of exploration into "the wonder of the body and its unlimited resource for enjoyment" (Dickinson & Travis, 1977, p. 214) bringing joy, pleasure, and spontaneity - a love of life - to the explorer. This study ends with a challenge for future researchers to find ways to refute or support the claims of the potentiality of creative dance to stimulate greater physical, cognitive, affective, and social skills, which, in turn, can increase the personal understanding of oneself and one's interrelatedness to others through the enjoyable medium of creative dance

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Appendix 1 (continued)

Physical Observations of Adults (Physical 2 Test)

Performance strong = 3 moderate = 2 weak = 1 nonperformance = 0
1st evaluation Right Left 2nd evaluation Right Left

Shoulders raise both shoulders
alternately raise and lower each one
forward and back
circle

Hands on shoulders elbows forward
on head
over head
circle hands from wrist

Arms circle arms

Legs lift knee replace
extend leg straight forward

Feet circle foot (one leg crossed over other)
move toes apart
move heels apart
lift heels off floor
lift toes off floor

adapted from Tinetti et al. 1986, Caplow-Lindner, et al. 1979)

Appendix 2

Demonstrated Knowledge of Creative Dance

Can demonstrate	always	most times	sometimes	never	N/A
<hr/>					
locomotor skills					
walk					
run					
skip					
jump					
hop					
gallop					
leap					
slide					
<hr/>					
nonlocomotor skills					
bend					
stretch					
turn					
twist					
swing					
stop					
<hr/>					
correct body alignment (when asked)					
sitting					
standing					
<hr/>					
Spatial Awareness					
Range - size	does large movement				
	does small movement				
<hr/>					
Directionality					
front -with arms/hands	-with legs/feet				
	-other (creative explorations)				
back	-with arms/hands				
	-with legs/feet				
	-other (creative explorations)				
sides	-with arms/hands				
	-with legs/feet				
	-other (creative explorations)				
up	-with arms/hands				
	-with legs/feet				
	-other (creative explorations)				
down	-with arms/hands				
	-with legs/feet				
	-other (creative explorations)				
circle	-with arms/hands				
	-with legs/feet				
	-other (creative explorations)				

Appendix 2 (continued)

Demonstrated Knowledge of Creative Dance

CREATIVE PROCESS	Yes	No	Comments (field notes)
Can demonstrate an ability to			
a explore			
b discover			
c select			
d combine			
e sequence			

Appendix 2a

Emotions Checklist

HOW DO YOU FEEL AT THIS MOMENT?

Good | _____ | Bad

Pleasant | _____ | Unpleasant

Relaxed | _____ | Tense

FEARFUL:

Do not feel at all

Feel very strongly

SAD:

Do not feel at all

Feel very strongly

ANGRY:

Do not feel at all

Feel very strongly

HAPPY:

Do not feel at all

Feel very strongly

AGREEABLE:

Do not feel at all

Feel very strongly

INTERESTED:

Do not feel at all

Feel very strongly

OTHER: (How do you feel?)

HOW DO YOU FEEL?

Appendix 3

Cratty Adaptation of the Piers-Harris Self-Concept Scale

CONCEPT SCALE

NAME _____ DATE _____ GRADE _____ M _____ F _____

1	Are you good at making things with your hands?	Yes	No
2	Can you draw well?	Yes	No
3	Are you strong?	Yes	No
4	Do you like the way you look?	Yes	No
5	Do your friends make fun of you?	Yes	No
6	Are you handsome/pretty?	Yes	No
7	Do you have trouble making friends?	Yes	No
8	Do you like school?	Yes	No
9	Do you wish you were different?	Yes	No
10	Are you sad most of the time?	Yes	No
11	Are you the last to be chosen in games?	Yes	No
12	Do girls like you?	Yes	No
13	Are you a good leader in games and sports?	Yes	No
14	Are you clumsy?	Yes	No
15	In games do you watch instead of play?	Yes	No
16	Do boys like you?	Yes	No
17	Are you happy most of the time?	Yes	No
18	Do you have nice hair?	Yes	No
19	Do you play with younger children a lot?	Yes	No
20	Is reading easy for you?	Yes	No

Appendix 4

"Happy/Sad" Faces Scale



Appendix 5

Video-taped Observations of Social Skills

Social Skills	always	most times	sometimes	never	N/A
COOPERATION cooperates with dancers cooperates with teacher					
FOLLOWING follows teacher follows partner					
LEADING can lead partner can lead a group					
COMMUNICATION follows directions responds to music watches other dancers					
APPRECIATES ABILITIES OF self (verbal) (facial - smile) others (verbal) (facial - smile)					
SENSE OF BELONGING participates with partner participates with group					
AWARE OF OTHERS bumps into others					

Appendix 6

Questionnaire for Participants in Movement Sessions

1 Do you feel better after you join in the dance?	Yes	No
2 Do the exercises help you move better?	Yes	No
3 Children Do you dance/exercise at home?	Yes	No
Adults Do you dance/exercise on your own?	Yes	No
4 Adults only Since joining our sessions has it been easier to		
sleep	Yes	No
bend	Yes	No
relax	Yes	No
climb stairs	Yes	No
breathe deeply	Yes	No
stand on your feet	Yes	No
walk	Yes	No
sit	Yes	No
write	Yes	No
4 Children only Since dancing it is easier to		
jump	Yes	No
run	Yes	No
leap	Yes	No
spin	Yes	No
slide	Yes	No
skip	Yes	No
hop	Yes	No
5 Adults Do our sessions make you feel		
less lonely	more lonely	
less tense	more tense	
less optimistic	more optimistic	
less anxious	more anxious	
less enthusiastic	more enthusiastic	
less self-assured	more self-assured	
less cheerful	more cheerful	
less tired	more tired	
less confused	more confused	
5 Children Does the dancing make you feel		
less tired	more tired	
less happy	more happy	
less sad	more sad	
less tense	more tense	
6 Adults Has your concentration improved?	Yes	No
6 Children Can you pay attention better?	Yes	No
7 Was it fun to dance with the children in the class?	Yes	No
8 If applicable, Was it fun to dance with the adults in the class?	Yes	No
9 Did you make new friends in the class?	Yes	No
10 What part of the dance class do you enjoy the most? Comments		

Adapted from Caplow-Lindner et al. (1979)

Appendix 7

Staff/Teacher Evaluation of Participant Response to Dance Sessions

Staff/Teacher Name _____ Date _____

Dancer's Name _____ Age _____

General Condition _____

1 Does the dancer look forward to the dance sessions? YES _____ NO _____

2 Have you noticed positive changes in the dancer's behaviour after dance classes?

YES _____ NO _____

(IF NO please comment briefly) _____

(IF YES, check those which apply leave the others blank)

A Physical Changes (ADULTS only)

Improvements of

- a appetite _____
- b sleeping habits _____
- c bladder control _____
- d flexibility _____
- e mobility _____
- f coordination _____
- g posture _____

A Physical Changes (CHILDREN only)

Improvements of

- a flexibility _____
- b mobility _____
- c coordination _____
- d posture _____

B Affective Changes (ADULTS or CHILDREN)

Alleviation of

- a anxiety symptoms _____
- b attention demands _____

Improvement of

- c self-image _____
- d memory _____
- e concentration _____
- f alertness _____

C Social Changes (ADULTS only)

Improvement in attitude toward

- a staff _____
- b other residents _____
- c family _____

C Social Changes (CHILDREN only)

Improvement in attitude toward

- a teacher _____
- b other classmates _____
- c other peers _____

Additional Comments _____

(adapted from Caplow-Lidner et al 1979)

Appendix 8

Creative Dance Lessons (all class lengths are 30 minutes)

Lesson 1

Concepts Body parts Time fast/slow dance/freeze Space high, middle, low Locomotor movements walk hop Nonlocomotor actions tighten/release

I. Warm Up

(Music Sweet Rosie O Grady and Tennessee Waltz)

a) In Self-space (pretend there is a bubble around you and you will not bump into anyone else) Body parts move head, hands, arms, fingers, etc. Move with the dance teacher in different ways (gently shake, poke). When the teacher calls out different body parts, move those body parts in different ways (with the teacher if necessary)

With seniors only Concentrate on slow movements with the head, arms, fingers, torso, legs, toes, etc. and breath deeply and slowly between every three sets of movements in each body part

(Music Row, Row Row / The Gambler by Kenny Rogers)

b) Move around the room (still in your bubble) On toes, heels, knees out etc. (Adults remain seated but move body parts)

II. Creative Dance/Skills

(Music Onnoco Flow by Enya Anniversary Waltz)

a) Dance/Freeze dance with top half of body, keep legs frozen
dance with bottom half of body, keep arms frozen (introduce hops, freeze)
dance with whole body freeze into statue shapes

(Music Row Row Row)

b) Speed Fast. When the music is fast - dance fast (head, arms, fingers, etc.)
-also did a rowing boat dance and experimented with different actions: poke, gentle, etc.

(No Music)

c) Locomotor Skills learn hops

(Music Incan Dream Music)

d) Take turns Dance/Freeze Dance freely

III. Relaxation/Cool Down

(Music In the Mood or no music)

Get the squeeze balls, tighten and release hand grips on the ball, pass the balls to your neighbour. Then tighten and squeeze other body parts

GOALS Physical increase movement repertoire, increase joint mobility, unblock muscular tension

Cognitive awareness of body parts, learn movement concepts.

Learn/explore movement concepts space (high, middle, low) time (fast)

locomotor movements (walk, hop)

learn the connection between tension and relaxation of muscles.

Affective feeling good about regaining/learning movement skills, feel more relaxed

Social be a group member, perform in a group

Appendix 8

Lesson 2

Concepts Space Size (big/small) Locomotor movement jumps. Nonlocomotor movements shake.
Directionality up/down side/side circular pathways Concept bend/twist

I. Warm Up

(Music My Blue heaven Misty Row, Row Row)

a) Isolation exercises Move different body parts with the teacher (review old concept) add in directionality side/side

(Music La Garde Montante Anniversary Waltz La Bamba In the Mood)

b) Introduce new concepts -Big/small movements (move with the teacher)
-Bend/twist movements (move with the teacher, ideas free exploration)

II. Creative Dance/Skills

(Music La Bamba Boogie Woogie)

a) Take turns Big/small Dance/freeze Dance/Watch

Group 1/Children explore with big movements around the room. Group 2/Adults watch visa versa
Group 1/Children explore with small movements around the room. Group 2/Adults watch visa versa

Repeat above turn taking when exploring bend/twist

(Music Enya a Waltz - Misty)

b) Groups of 5 Pathways - side up/down circular, take turns and make an improvised "dance" using a frisby, frisby initiates pathways

(Music In the Mood)

c) Skill Review hop, learn jumps, adults clap the rhythm

(No music)

d) Feelings move "happy" "sad" "angry" "scared", "tired", "disgusted"

III. Relaxation/Cool Down

A breathing exercise participants are instructed to breathe deeply Then tighten and release tension in each body part (Use squeeze balls again)

GOALS Physical increase movement repertoire, increase body movement, fluidity, flexibility, unlock muscular tension

Cognitive awareness of body parts, learn (or rekindle) the concepts in this lesson, learn/explore movement concepts space (big/small), locomotor (jumps), nonlocomotor (bend/twist) learn the connection between tension and relaxation of muscles

Affective feeling good about regaining/learning movements:

appreciate efforts of self and others, explore feelings/emotions, feel more relaxed

Social be a group member watch groups perform and perform in a group

Appendix 8

Lesson 3

Concepts Space Levels high medium low review pathways with scarves - curve, high low.
Nonlocomotor movement stretch rise/sink, freeze/melt, shapes, Concepts bend/twist, fast/slow
Locomotor movement leaps, review hops jumps

I. Warm Up

(Music Flashdance Jesu, Joy of Man's Desiring by Bach)

- a) Stretch Stretch every body part high (up) medium, low (down), fast slow
-twist bend, curve, and twist up/down

(Music O Siem by S. Aglukark, Peter Enjoys a Swing by H. Willan)

- b) Introduce rise and sink (follow the dance teacher, i.e. free style, then mimes such as climb a mountain, sink slowly in mud, be smoke rising, snow falling, a balloon rising, leaves falling)

II. Creative Dance/Skills

(Music In the Hall of the Mountain King, Grieg, Soratina in G, M. Clementi)

- a) Imagery/Emotions creep (sad) run low (hear noise), jump (surprised), land (Adults watch)

(Music Moonlight Sonata, Minuet in G Minor, G.H. Stölzel)

- b) Make a shape and freeze, melt, make a new shape

(Seniors did not do this but did move feet, ankles, arms, breathing, etc.)

(Music Flashback, Chase by Miami Vice)

- c) Scarf dances high, low, pathways with scarves,

(Music Chase or Evan by Miami Vice, Bouree by G.P. Telemann or Soratina in G, by A. Biehl)

- d) Skills -leap over small objects (i.e. shoes, milk cartons)

-Adults clap in different rhythms for jumping, hopping, and leaping

-review hops, jumps

III. Relaxation/Cool Down

A breathing exercise participants are instructed to breathe deeply. Then tighten and release tension in each body part

GOALS

Physical increase movement repertoire, joint mobility, increase body movement,
learn/review locomotor skill jumps, hops, leaps, unblock muscular tension

Cognitive awareness of body parts, learn concepts space levels (high, medium, low), pathways,
fast/slow, twist, bend, curve Nonlocomotor movements stretch, rise/sink, shape, freeze, melt,
learn the connection between tension and relaxation of muscles

Affective feeling good about regaining/learning movements, watch and explore feelings/emotions, feel
more relaxed

Social work in groups, cooperate with partner (take turns following and leading in mirror exercise)

Appendix 8

Lesson 4 (Tape)

Review Body parts front/back, side/side, big/small/ bend/twists rise/sink, high/medium/low

New Concepts Force, weight heavy/light,

Nonlocomotor movement swings, Locomotor movement spins, Relationships near/far

I. Warm Up

(Music: Jesu, Joy of Man's Desiring)

a) In self-space Move and stretch body parts (front/back, side/side), big/small, bend/twists, high/medium/low

(Music: Peter Enjoys a Swing)

b) Rise and sink - high, medium, low

(Music: Minuet in G, S. Bach for C and D)

c) New concepts heavy/light, swings (explore using body parts)

d) Near/Far: sitting in circles (one inner & one outer circle) Lean in lose, lean out, far

II. Creative Dance/Skills

(Music: Night Rupert by Schumann)

a) Imagery/emotions creep (scared), run low, jump (surprised), stop
story: quietly creep through the forest, twist around and look, move through the vines, hide, jump with surprise, stop, melt (adults watch)

(Music: Minuet in G, J.S. Bach, B.W.V. 116 Opus)

b) Hello Dance (for mixed group) shake hands hello, wave, and swing together
(added on as the adults had stopped dancing and the dancers had become hesitant to find partners and work together)

(Music: Minuet in G, J.S. Bach, the Anna Magdalena Notebook)

c) Dance with Scarves - copy the dance teacher and make up own patterns

(Music: Various selections depending on the group work See below)

d) Groups take turns leading with Frisby (La Cucaracha, Mexican Folk Song)
-with sponge balls (In the Mood)
-with scarves (Etude in E Minor)

(Music: Sonatina in G by A. Biehl, Spinning Song by A. Ellmenreich)

e) Skills Review jumps, hops, leaps (Adults watch); Learn spins (Adults watch)

III. Relaxation/Cool Down

(Music: Ava Mana)

Listen to music while doing the deep breathing and progressive muscle relaxation exercises (tightening and releasing tension in each body part).

GOALS Physical: activate nonlocomotor and locomotor movements; review patterns of movement; increase fluidity, flexibility of movement; unblock muscular tension

Cognitive: remember patterns/concepts of movement (see Ia and Ib above), learn new concepts (see Ic above), remember/learn/explore movement concepts (big/small, bend/twist, levels high/medium/low, heavy/light) and movement skills: jumps, hops, leaps, spins, learn the connection between tension and relaxation of muscles

Affective: feeling good about moving; appreciate efforts of self and others, explore emotions/imagery, feel more relaxed

Social: work in groups, pairs, cooperate; follow; lead; watch others

Appendix 8

Lesson 5

Body Parts: Low/high/ swing/ up/down/ figure 8

Concepts: Force weight heavy/light Nonlocomotor movement swing.

I. Warm Up

(Music: Dance of the Jesters)

- a) Swing body parts (arms, legs, head, torso, hands, feet) low and high swing up slowly, hold, and swing down slowly, swing in a figure eight.

(Music: Hungarian Rite)

- b) Rhythm clapping hands and tapping feet in rhythm to the music from a seated or standing position

II. Creative Dance/Skills

(Music: Banjo)

- a) Explore Swing roller coaster, hammock, trapeze

(Music: Prelude by Chopin)

- b) Explore heavy carry suitcase, box

(Music: Boccherini's Minuet)

- c) Explore light dandelion puffs, astronauts in space, feather

(Music: Dolls, Poupée/doll music)

- d) Alternate between heavy and light

(Music: Spring Song)

- d) Light Blow bubbles, dance. Half the group dances and half the group watches

III. Relaxation/Cool Down

(Music: Moonlight Sonata, Beethoven)

- a) close eyes (but can keep eyes open if you wish), deep breathing, imagery (story: relax on the beach, listen to the gentle water, look at the tree tops swaying gently, float on the clouds, feel light and airy, feel relaxed and listen to the music, slowly wake up feeling refreshed and alert)

GOALS

Physical: increase movement repertoire, continue to gain in flexibility, mobility, increase movement fluidity, flexibility; unlock muscular tensions

Cognitive: awareness of body parts, learn movement concepts (swing, low/high, slow/fast, heavy/light), learn/explore/remember movement concepts heavy/light, learn to use imagery for relaxation

Affective: feeling good about moving in different ways, enjoy moving, feel relaxed

Social: be in a group

Appendix 8

Lesson 6

Concepts Directionality forward/backward. Locomotor movement skip, spin (in Ball Dance)
Nonlocomotor movements push/pull Relationship gather/scatter

(All Music for this lesson was improvised by the pianist)

I. Warm Up

- a) Review ~~swing~~ heavy/light
- b) Body Parts forward/backward
- c) Push away from the centre of the body. Pull move to the centre of the body

II. Creative Dance/Skills

- a) Scatter/Gather with imagery Dance/Freeze
Imagery clouds gathering feathers scattering rose petals scattering gathering flowers
- b) Groups children pull an imaginary rope between each group adults watch
- c) Mime story the dance teacher tells a story that the children will act out and the adults/children help tell (i.e. get in your car start it, drive, go to the store, get a grocery cart, get groceries - I name a few and then get the children/adults to name items to buy, not enough money so go back home, get money and go back to the store and pay, carry heavy bags and end the story)

Second time I asked the children to give me several ideas and then made up a story for us to act out from all the ideas (Ideas go to the store, gather flowers, go to the doctor, drive a car, camping, Story We drove to the country, set up a tent, gathered flowers, got hay fever, sneezed often and drove to the doctor, got a prescription, and swallowed the medicine, felt better)

- d) Ball Dance
Two groups A and B Group A skips in with the balls Find a partner in group B Share the ball and move side to side 4 times then up and down 4 times then one person (group A) gives the ball to the partner (group B) Group A spins, waves good-bye and skips away Repeat with the other group leading (Adults remain seated and children always do the skipping and waving good-bye)
- e) Review working with props (scarves, balls, balls)

III. Relaxation/Cool Down

- relax to imagery
- eyes can be either opened or closed
- (waterfall of clear, cool water washing over your body over your head, shoulders, arms, hands, fingers, chest, back, tummy, buttocks, legs, feet, toes Energy washes over you and brings quiet calm Slowly wake up and feel relaxed and alert)

GOALS Physical: increase movement repertoire, increase body movement, fluidity, flexibility, decrease muscular tension

Cognitive: learn (or remember) the concepts in this lesson, reactivate/learn group story telling, explore imagery

Affective: feeling good about learning or remembering the movements, increase happiness of children, decrease depression (if there is any) and increase happiness in adults, feel relaxed and alert

Social: stimulate group interactions

Appendix 8

Lesson 7

Concepts: body alignment, Directionality, right/left, Locomotor movement: gallop
Nonlocomotor movement: melt, Mime, Magic Stick, Skip Rope

I. Warm Up

(Music: Watermark by Enya, Ode to Joy)

- a) Body Alignment (Stand/sit, Spinal roll down, straighten, breathe) pathways with arms
i.e. circular

(Music: La Bamba, California Raisins, Happy Dancers)

- b) Swing/shake arms, legs, hands, feet, right, left, forward, backward, tap toes, clap hands

II. Creative Dance/Skills

(Music: Mammagamma, Alan Parson Project, Sunrise, Sunset and Present Dance)

- a) Explore stretch/melt

(No music)

- b) Partners: Mirror emotions on the face (written on a card): happy, sad, tired, angry, afraid

(Music: Ghost - Phantom, Baines and Czardas)

- c) Listen to the music and mime something to the music

(Music: Gallop)

- d) Skills: review, jump, hop, leap, skip, learn, gallop

(Music: improvised by pianist)

- e) Scarf Dance

(Music: none)

- e) Magic Stick: All children sit in a circle with me and mime with a magic stick that changes. If they do not want a turn, they can pass.

III. Relaxation/Cool Down

-breathe deeply, relax.

-Imagery: seaside adventure (imagery of the sea, beach, fish, sun, etc.)

Everyone was instructed to breathe deeply, to relax, and then to visualize they were going to the sea, looking at the fish, lying on the sand, and feeling the warm sun on their faces. At the end of this visualization, everyone was instructed to give themselves a hug.

GOALS: Physical: increase movement repertoire, continue gaining flexibility, fluidity, increase movement, fluidity, flexibility, unblock muscular tensions

Cognitive: awareness of body parts, learn/remember movement concepts (swing, right/left, forward/backward, stretch/melt), learn/explore/remember movement concepts (stretch/melt, review/learn skills (see Id above), explore imagery, learn to use imagery for relaxation)

Affective: feeling good about moving in different ways, enjoy moving one's body and enjoy being in the company of other dancers, feel relaxed

Social: be in a group, be partners, cooperate, lead, follow, communicate

Appendix 8

Lesson 8 (Tape)

New concepts: Nonlocomotor movements, balance, Pathways, circle, zigzag, Concept in/out

I. Warm Up

(Music: Lucille by K. Rogers, Starlight Waltz by C.S. Brainard)

a) Swing, low, high, Swing hold, pendulum. Directions: front, back

(Music: Waiting for the Robert E. Lee by Claude Bolling,

Hungarian Rhapsody #2 - Friska part, Liszt)

b) toes, heels (in/out), tap fast/slow, shake, clap

Walk around the room on toes, on heels (heavy/light, fast/slow)

ii. Creative Dance/Skills

(Music: Incan Dream Music by Jon Shore, 2001 A Space Odyssey by R. Strauss)

a) Pathways in Space (circle, arms forward, back, side, zigzag) - painting

(Music: Care for Kids - Return to Innocence by Engima,

Scarf Dance - Forgotten Dreams by Leroy Anderson)

b) Ball dance / scarf dance

(Music: Haydn Serenade by Franz Joseph Haydn, Incan Dream music by Jon Shore)

c) Mime: Listen to the music. Then different groups are given work pairs to dance together.

The other groups will watch and guess the word pairs. The word pairs included: scatter/gather, push/pull, freeze/melt, light/heavy)

(Music: Treaty by Yothu Yindi)

d) Skills: review jump, hop, leap, skip, gallop

iii. Relaxation/Cool Down

(Music: Ava Mana by F. Schubert)

-breathe deeply, relax, eyes can be either open or closed

-imagery story (fountain going up and splashing us with cool, invigorating energy, will feel relaxed and full of quiet energy)

GOALS: Physical: continue to gain or maintain flexibility, fluidity of movement, maintain or gain movement fluidity, flexibility, unblock muscular tensions

Cognitive: awareness of body parts, remember and learn movement concepts (low/high, swing, front/back), remember "routine" (Ball/Scarf Dances) and skills, create own movement concept story or dance, learn to use imagery for relaxation

Affective: feeling good about moving the body in different ways, feel relaxed

Appendix 8

Lesson 9

Concepts Balance Bend/Twist Directions

I. Warm Up

(Music Starlight Waltz by C S Brainard)

- a) Self-space (bubble) move body parts - dance teacher calls out different ones - move slowly (dancers asked to be quiet as the music is very quiet)

(Music Hungarian Rhapsody #2 Fnska part, Liszt)

- b) Self-space move shake poke punch, dab slash

ii. Creative Dance/Skills

(Music Op 299, No 2 by S Czerny)

- a) Review big/small find a "balance" position and pose half of the group dances and the rest of the class members watch

(Music Op 176 No 24 by Jean-Baptiste Duvemoy)

- b) Review bend/twist balance Group that had been watching now dances other group watches

(Music Op 299 No 2 by S Czerny)

- c) quick reactions with directions (up, down, right, left, low, high, back, front, sides)

(Music Spinning Song by Albert Ellmenrech)

- d) Dance skills two slides two hops and a star jump followed by a tiptoe exit

(Music various selections depending upon which mime/dance was chosen)

- e) Birds flying in the wind (Music Mist by Clifford Poole)
Seaweed in the ocean (Music Mist by Clifford Poole)
Cowboys lassoing (Music To the Rising Sun, Trygve Torjussen)
Astronauts in Space (Music Sonatina by Wolfgang Amadeus Mozart)
Campers getting warm by a campfire (Music Op 599, No 85)

(Music Galop from Orpheus)

- f) Hoop Dance

iii. Relaxation/Cool Down

(Music Climb Every Mountain by Rogers and Hammerstein)

- eyes can be either open or closed
- Breathing, Imagery ("Letting cool, refreshing water wash over your body to relax and energize you, open your eyes and feel relaxed and alert")

GOALS Physical maintain movement repertoire, coordination, learn/review directions, balance, unblock muscular tension

Cognitive awareness of body parts and movement concepts (shaking, poking), learn/explore movement concepts, mime, critique group work, learn the connection between tension and relaxation of muscles.

Affective feeling good about moving, appreciate efforts of self and others feel relaxed

Social work in groups cooperate communicate

Appendix 8

Lesson 10

Nonlocomotor movements suspend swing lift/drop.
Directions with flow/jerky pathways Body alignment. Locomotor movements circles

I. Warm Up

- (Music Lonely Shepherd by Zamfir Starlight Waltz by C S Brainard)
- a) Stretch suspend swing relax (body parts)
- (Music Axel F by Beverly Hills Cop. Op 120. No. 4 by Duvernoy)
- b) Qualities soft, light bubbles, heavy, strong (arms, legs), lift, drop, rise, sink

ii. Creative Dance/Skills

- (Music Six Variations on a Swiss Theme L. von Beethoven)
- a) Flow directions (right, left, up, down, side, zigzag, forwards, backwards)

- (Music Road to Lisdoonvara by Foxfire)
- b) Jerky same directions as Iia above

- (Music What a Difference You've Made in My Life by Archie Jordan)
- c) "Birds in a Nest" (happy) wind shakes tree, fall out (sad), fly back (energetic), back in nest (tired)

- (Music Good Day Sunshine by the Beatles, improvised by the pianist)
- d) Pathways show pictures (straight, curved, zigzag) Groups draw pictures and give it to other groups to dance out, audience evaluates

- (Music Variety, different music depending on the mime/dance)
- e) Raggedy Ann/Andy body limp arms/legs up/drop, (Music Mazurka Op 67 No. 3 by Chopin)
Balloons (Music Barcarolle by Offenbach)
Bees finger buzzing (Music Sonata Op 36, No. 5, First Movement by B. Clementi)
Falling leaves hands/arms being tossed on the wind (Music Fur Elise by Beethoven)
Flowers opening torso down, unfolds to a sitting position (Music Sonata in C by Mozart)

- (Music Gallop from Orpheus - "Orpheus and the Underworld" by Jacques Offenbach)
- f) Hoop Dance -up, down, side, side, hoop down, point toes into the hoop 4 times.
-then person one moves to the next group, everyone picks up the hoop, repeat dance
-then person two moves to the next group, everyone picks up the hoop, repeat dance

III. Relaxation/Cool Down

- (Music The Rose by Zamfir improvisation by the pianist)
- close your eyes, breathe deeply, listen to the music, imagery Imagine you are in a meadow sitting on soft grass, enjoying the sun on your skin, and feeling the cool, wind on your face Sit quietly Open your eyes stretch and feel good for the rest of the day

GOALS Physical increase/maintain movement repertoire, continue to gain flexibility, mobility, increase movement fluidity, flexibility, unblock muscular tensions

Cognitive movement concepts (stretch, swing), learn/explore/remember movement concepts, dance routine, story telling, learn the connection between tension and relaxation of muscles and the role of deep breathing

Affective enjoy moving appreciate effort of self and others, explore emotions, critique group work feel relaxed

Social be in a group, be aware of others, follow, lead, cooperate, communicate

Appendix 8

Lesson 11

Review: Body alignment, Directionality forward/backward, Locomotor movements skip, gallop,
Review forward/backward push/pull, stretch/melt gather/scatter circle patterns

I. Warm Up

(Music: Oh Siem by S. Aglukark, Sonatina Op. 151 No. 1, Antonio Diabelli)

a) Body alignment then body parts forward/backward, push/pull, stretch/melt

II. Creative Dance/Skills

(Music: The Nightingale and Cuckoo, composer unknown)

a) In groups circle dance pattern

(Music: The Dream of the Dolphin by Enigma, Blue Danube by J. Strauss, Jr.)

b) Rain Drops (The children are rain drops in a cloud)

The wind sways and moves the cloud around in the room. Some rain drops fall in a spot in the room, the cloud moves on and then more rain drops fall until there is no more cloud. The rain drops form a puddle. Then a new cloud is made. The cloud sways on the spot and then the rain drops fall in one spot.

(Music: Other Side of Life by Moody Blues, You Light up My Life by Joseph Brooks)

c) Mime Shape Museum

Partner: Mirror, then person 1 forms person 2 into a shape, dances around them, and dances to the next statue and takes its shape. Mirror with the new partner; the person who was person 2 forms the new partner into a statue, dances around them, and dances to the next statue and takes its shape.

(Music: La Garde Montante, Carmen Suites by Bizet, Let's Go Fly a Kite, version by pianist)

d) Partners puppets kite flying (one person is the kite, one person is the kite flyer)

Two circles, one inside the other. Person 1 (the kite) begins on one knee, Person 2 makes the actions of letting out the string, Person 1 flies, Person 2 reels the "kite" in, and person 1 goes back on one knee. Person 1 moves onto the next person in the circle. The dance pattern is repeated three times. Then dancers switch roles. Person 1 becomes the kite flyer and person 2 becomes the kite.

(Music: La Garde Montante, Carmen Suites by Bizet)

e) Streamer Dance

III. Relaxation/Cool Down

a) seniors squeeze a spongy ball, everyone deep breaths, then close the eyes and relax to imagery (The students are told to imagine they are sitting on a mossy field, feeling the warm sun on their faces and feeling a waterfall gently brushing over their bodies. In the senior's only class, it was added that any pains they were experiencing should "go away". Everyone was then instructed to feel refreshed and open their eyes.)

GOALS: Physical: maintain movement repertoire, increase/maintain body movement, fluidity, flexibility, learn to relax the body.

Cognitive: remember movement concepts, explore imagery, remember skills, explore imagery

Affective: feel good about moving the body, increase self-concept and happiness of children (from mastery of skills) increase happiness of adults by interacting with the children and moving their bodies, feel relaxed and alert

Social: stimulate group interactions, cooperate, follow, lead, watch (communicate effectively)

Appendix 8

Lesson 12 (tape)

Review balance stretch/melt swing, heavy/light, directions circles scatter/gather
Nonlocomotor movements pop, Locomotor movement spins, slide, leap, gallop, jump, hop

I. Warm Up

(Music Starlight Waltz)

a) Move body parts stretch/melt swing heavy/light, (Directions forward back, circle, zigzag)

(Music Nightingale and the Cuckoo)

b) Adults Perform with streamers for the children

II. Creative Dance/Skills

(Music What a Difference You Make in My Life by Archie Jordan)

a) Gather/Scatter "Birds in the Nest" story (Seniors are the flowers)

(Music I'd Like to Teach the Word to Sing by B. Backer, B. Davis, R. Cook, R. Greenaway)

b) Skills Review all jump, hop, skip, gallop, slide, leap, spin

Add 2 hops, 1 big leap, 1 spin, quietly exit on tiptoe exit

Then 2 slides, 2 gallops, 1 star jump, and a quick run exit

(Music Gallop From Orpheus)

c) Intergenerational Class Hoop dance, dance with streamers and with bubbles

Children's only class, did statues again

III. Relaxation/Cool Down

(Music The Impossible Dream - Joe Danon (words) and Mitch Leigh (music)
from Man of La Mancha)

- Listen to music while doing deep breathing and progressive muscle relaxation exercises

GOALS Physical: maintain nonlocomotor and locomotor movements, review patterns of movement, increase or maintain fluidity, flexibility of movement, review locomotor skills, unblock muscular tension
Cognitive: remember movement patterns, remember the dance routine / story idea, learn the connection between tension and relaxation of muscles, appreciate effort of self and others, explore imagery (Bird Nest Dance)
Affective: feeling good about moving, feel more relaxed
Social: work in groups, cooperate, follow lead, watch and critique others (communicate effectively)

SIMON FRASER UNIVERSITY

Informed Consent for Minors by Parent or Guardian to Participate in a Research Project

Your child(ren) are invited to participate in a Simon Fraser University research project involving creative dance, which is part of the children's school curriculum. Irene Rossberg-Gempton, a PhD student and former local dance teacher, will be conducting the dance classes and doing the research as part of her doctoral dissertation. It is proposed that the children will be dancing for 1/2 hour during PE time 2 times per week for 10-12 weeks (Jan -Mar. or Mar -May 1996). They will learn physical warm-ups (which are applicable for sports warm-ups as well), experience motor skills (i.e. leap, jump, spin, balance exercises), dance to music with the dance teacher, pantomime (acting without speaking), and learn cool-down, relaxation exercises. In the class, the children will learn about body movement and body placement, how to express feelings through movement, and to move spontaneously and creatively to music. Some children will dance with the Halcyon Home residents, others will dance with each other at school.

Past research by Irene Rossberg-Gempton in Waterloo, Ontario has indicated that creative dance is an enjoyable experience. This study will examine the effects of creative dance on physical skills, social skills, affect, and cognition. For example, as the Waterloo study found that children participating in dance felt happy, became more aware of how their bodies moved, experienced better coordination and had a chance to cooperate creatively with their classmates, it is believed that this program will produce similar experiences for your child(ren). To determine if changes have taken place, it would be appreciated if you and your child(ren) would allow Irene Rossberg-Gempton to make observations during dance class and if you would permit your child(ren) to participate in some testing (i.e. the performance scales in the Wechsler Intelligence Scales, the Bruininks-Oseretsky Test of Motor Proficiency, the Cratty Self-Concept Scale, and a "happy/sad" faces scale). In addition, some video-taped observations would be included to better enable Irene to see the experiences and progress of each child. Also video-taping helps the children see how they dance and is useful during the pantomime portion of the class. (Experiences in Waterloo showed that children enjoyed watching themselves on videotape.)

To attain our goals, we need your help. We would be highly appreciative if you and your child(ren) would allow Irene to make observations of your child(ren) during the dance classes and if you would permit your child(ren) to participate in the aforementioned tests. The information given by you and your child(ren) will remain anonymous and confidential. You and your child(ren)'s names will not appear in any document. You have the right to ask Irene not to include her observations of your child or to terminate the testing at any point and your child(ren) can omit any questions he or she chooses. Likewise, the observation Irene makes from the videotapes will remain confidential and would not identify any child in particular. They are simply an aid to observing, understanding, and writing down what children are experiencing in dance classes which will help Irene to prepare future classes as well as help her to write down her dissertation.

The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your own protection and full understanding of the procedures and aims of the research. Your signature on this form will signify that you have read the procedures of the research project and that you have been given an adequate opportunity to consider the information in this document, and that you voluntarily agree to participate in the project.

Appendix 9 (continued)

Informed Consent for Minors by Parent or Guardian to Participate in a Research Project

As (parent/guardian) _____ of (name of
child) _____

I consent to my child engaging in the procedures specified in the above-mentioned research

to be carried out in Glenbank Elementary gym or Halcyon Home or Burton Elementary

at the following times: pre-testing in December, 1995, dance program 30 minutes, 2 x per week
Thursdays and Fridays (gym times) from Jan -Mar or Mar -May 1996
post-testing March/April/May, 1996 (exact dates to be determined)

in a research project supervised by Irene Rossberg-Gempton, Dr. John Dickinson, SFU

I understand the procedures and have explained them to my child. My child knows that she/he has the
right to withdraw from the project at any time.

Any complaint about the project can be brought to the chief researcher named above or to
Dr. Andy Hoffer, School of Kinesiology, SFU

I may obtain a copy of the results by contacting,
Irene Rossberg-Gempton, Box 43, Burton, B.C. V0G 1E0

SIGNATURE _____

Appendix 10

SIMON FRASER UNIVERSITY
Informed Consent by Participants to Participate in a Research Project
(for the Senior Creative Dancers)

You are invited to participate in a Simon Fraser University research project involving creative dance. Irene Rossberg-Gempton, a PhD student and former local dance teacher, will be conducting the dance classes and doing the research as part of her doctoral dissertation. It is proposed that you will be dancing for 1/2 hour 2 times per week for 12 weeks in January to March 1996. You will participate in physical warm-ups, experience motor skills (i.e. flexibility, balancing exercises), dance to music with the dance teacher, pantomime (acting without speaking with the children), and learn cool-down, relaxation exercises. In the class, you will learn about body movement and body placement, will learn how to express feelings through movement, and learn to move spontaneously and creatively to music.

Past research by Irene Rossberg-Gempton in Waterloo, Ontario has indicated that creative dance is an enjoyable experience. This study will examine the effects of creative dance on physical skills, social skills, affect, and cognition. For example, as the Waterloo study found that children participating in dance felt happy, became more aware of how their bodies moved, experienced better coordination and had a chance to cooperate creatively with their classmates, it is believed that this program will produce similar experiences for adults as well. To determine if changes have taken place, it would be appreciated if you would allow Irene Rossberg-Gempton to make observations during dance class and if you would participate in some testing (i.e. the performance scales in the Wechsler Intelligence Scales, a simple movement test - to watch how you walk, sit, and stand and observe your mobility in the joints - the Beck Depression Inventory and the Profile of Mood States). In addition, some video-taped observations would be included to better enable Irene to see your experiences and movement progress. Also video-taping helps you to see how you and the children dance and is useful during the pantomime portion of the class. (Experiences in Waterloo showed that it is enjoyable to watch oneself on video-tape.)

To attain our goals, we need your help. We would be highly appreciative if you would allow Irene to make observations of your dancing during the dance classes and if you would participate in the aforementioned tests. The information given by you will remain anonymous and confidential. Your name will not appear in any document. You have the right to ask Irene not to include her observations of you or to terminate the testing at any point. You can omit any questions you choose. Likewise, the observation Irene makes from the videotapes will remain confidential and would not identify anyone in particular. They are simply an aid to observing, understanding, and writing down what you are experiencing in the dance classes which will help Irene to prepare future classes as well as help her to write down her dissertation.

The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your own protection and full understanding of the procedures and aims of the research. Your signature on this form will signify that you have read the procedures of the research project and that you have been given an adequate opportunity to consider the information in this document, and that you voluntarily agree to participate in the project.

Appendix 10 (continued)

Informed Consent by Participants to Participate in a Research Project
(for the Senior Creative Dancers)

I understand that I may withdraw my participation in this project at any time. I consent to participate in the procedures specified in the above-mentioned research to be carried out at Halcyon Home

at the following times: pre-testing in December 1995, dance program 30 minutes, 2 x per week
Thursdays and Fridays from January to March 1996, post-testing March/April 1996
(exact dates to be determined)

in a research project supervised by Irene Rossberg-Gempton, Dr. John Dickinson, SFU

Any complaint about the project can be brought to the chief researcher named above or to
Dr. Andy Hoffer, School of Kinesiology, SFU

I may obtain a copy of the results by contacting
Irene Rossberg-Gempton, Box 43, Burton, B.C. V0G 1E0

SIGNATURE _____

Appendix 11

SIMON FRASER UNIVERSITY
Informed Consent by Participants to Participate in a Research Project
(for the Senior Exercisers)

You are invited to participate in a Simon Fraser University research project involving creative dance. Irene Rossberg-Gempton, a PhD student and former local dance teacher, will be conducting dance classes and doing research as part of her doctoral dissertation. Although you are not expected to participate in the dancing, we need your help.

To understand the changes that take place in aging, we would like to test your thinking, normal movements (sit, stand, walk) and how you feel. The tests include the performance scales in the Wechsler Intelligence Scales, a simple movement test (to watch how you walk, sit, and stand and observe your mobility in the joints), the Beck Depression Inventory and the Profile of Mood States.

To attain our goals, we need your help. We would be highly appreciative if you would participate in the aforementioned tests. The information given by you will remain anonymous and confidential. Your name will not appear in any document. You have the right to ask Irene not to include her observations of you or to terminate the testing at any point. You can omit any questions you choose. Irene may video-tape your movement test but the observations she makes from the videotapes will remain confidential and would not identify anyone in particular. The tapes are simply an aid to observing, understanding, and writing down how you moved during the movement test which will help Irene to write down her observations.

The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your own protection and full understanding of the procedures and aims of the research. Your signature on this form will signify that you have read the procedures of the research project and that you have been given an adequate opportunity to consider the information in this document, and that you voluntarily agree to participate in the project.

I understand that I may withdraw my participation in this project at any time. I consent to participate in the procedures specified in the above-mentioned research to be carried out at the New Denver Pavilion.

at the following times: testing in December, 1995, Jan /Feb, 1996, March/April, 1996 (once a month)
(exact dates to be determined)

in a research project supervised by Irene Rossberg-Gempton, Dr. John Dickinson, SFU

Any complaint about the project can be brought to the chief researcher named above or to
Dr. Andy Hoffer, School of Kinesiology, SFU

I may obtain a copy of the results by contacting
Irene Rossberg-Gempton, Box 43, Burton, B.C. V0G 1E0

SIGNATURE _____

Appendix 12

SIMON FRASER UNIVERSITY
Children's Verbal Consent to Participate in a Research Project

I would like to ask you some questions. Some questions will be about dance class and some will be about how you feel. Your answers will help me understand dance better.

If you do not know the answer to a question, or if you do not wish to answer a question, that is fine. You do not have to answer any questions if you do not want to.

Also, you can ask me questions if you do not understand something. So, would you answer some questions for me now? Thank-you.

Appendix 13

Consent Form for the Creative Dance Program in Halcyon Home
(Physician's Approval)

I authorize _____ (patient's name) to participate in the creative dance program (consisting of gentle movement generally executed from a seated position) which will take place in January to March, 1996 at Halcyon Home.

(Circle One)

Yes

No

Note the following limitations or cautions.

Not Applicable (circle)

Or (list the limitations or cautions below):

Physician's Signature: _____

Appendix 14

Observations: Additional Details

Observational Issue 1

In Issue 1, it was examined whether creative dance exposure would increase dance knowledge with respect to learning more about: (a) moving body parts, (b) locomotor movements, (c) body alignment, and (d) spatial environment. Supplemental observations not recorded in the main body of this paper include observations of three of the aforementioned categories: (a) moving body parts, (b) locomotor movements, and (d) three subcategories in the spatial environment category; namely, big and small movements and high and low spaces, close together and far apart from other dancers, and directions and pathways. Specific, detailed observations in these categories and subcategories are recorded below.

Issue 1 (a) Moving Body Parts Intergenerational Class

On the first lesson, the movement changes from body part to body part (such as moving the head, then the shoulders, then the arms etc.) were very fast and some adults (but no children) would stop moving momentarily before moving the next body parts. On the second lesson, the movement changes were presented more slowly and more adults were able to make movement changes without stopping but shifted from body part to body part at a slower rate than the children. Many adults moved only a few body parts and experienced difficulty with circular actions when moving their shoulders, hands, and feet. Some adults moved sporadically or not at all. By the ninth week, many adults had increased the number of body parts they moved and were performing circular motions more smoothly and, with the exception of their feet, were imitating the dance teacher in shaking, poking, punching, dabbing, and slashing most body parts; by the tenth week, the adults moved all the named body parts, including their feet.

Unlike the adults, from the first week onwards, all the children were able to move all body parts as requested. From the fifth week onwards, the children moved with more fluidity and paid closer attention to the movement and rhythmic changes (evidenced by more precise movements of various body parts).

Intergenerational Class: Seniors dancing without children, children dancing without adults

As previously mentioned, due to limited funds for bussing, the intergenerational class could only meet one time per week, leaving some days when each group (seniors and children) met separately.

In general, the adults moved carefully and took longer to respond to the movement pattern changes when the children were not present. In the first two weeks of the dance program, a few adults were a bit confused and needed to be reminded that they were participating in a dance class; however, once the music played and the other adults danced, all but the sleeping adults moved their hands, arms, and shoulders. Occasionally some of the dancers would stop and watch. In contrast to the intergenerational class when children were present, by the third week of the adults only class, no adults in the dance class needed reminders that they were participating in a dance program and most adults attempted to follow the "body parts" dance actions, no longer stopping part way through the activity to watch me or the other adult dancers. From the fourth week onwards, the adults continued to expand their movement repertoire by moving their heads, shoulders, arms, fingers, torsos, feet, and toes in various patterns and rhythmic tempos. Similar to the times they danced in the intergenerational class, a smoothness in circular motions was not evident before week 9.

Throughout the 12 weeks it was found that the children consistently moved various body parts as requested. Interestingly, their movement expression seemed to correspond to the spaciousness of the room because they danced with exuberant expansive actions whenever they were in the gym.

Children's only dance group

The children were very expressive and adventurous in their movement explorations, experimenting with bending, twisting, turning, swinging, and stopping various parts of their bodies and responded appropriately to the changing musical patterns. By the twelfth week, verbal directions for the first activity were unnecessary because all the children had settled into the routine of quietly following my movement patterns with respect to moving various body parts.

Issue 1 (b) Locomotor Movements

In week 9, the sequence, which included two slides, two hops, one star jump, and a running tiptoe exit, was performed by all children in both classes but some of the children in the children's only class needed extra help through verbal reminders or by dancing the skills alongside the performing child. In week 12, two sequences were introduced and danced correctly by children in the intergenerational class. However, due to the extreme restlessness of some of the children in the children's only class during the demonstration, the number of locomotor skills were reduced in both sequences. Specifically, the first sequence, which required the children to hop twice, leap once, spin once, and then strut to the end of the line, was reduced to two hops, one leap, and a walk to the end of the line for the children's only class. With verbal reminders, most children were able to execute these reduced sequences correctly. Similarly, the second sequence, which required two slides, two gallops, one star jump, and then quick walks to the end of the line, was reduced to two slides, one

spin, and a walk to the end of the line for the children's only class. Even so, some children in the children's only class were restless throughout the demonstration and while waiting in line for their turn and several children needed verbal reminders of the skills in the sequence

Issue 1 (d) Spatial Environment

(1) Big and Small Movements: High and Low Spaces

On week 2, all groups explored big and small movements, then explored high, middle, and low spaces. Children engaged in big/small self-explorations but adults did not. Responding to a spontaneous idea, I moved from adult to adult in the seniors' only class. I held each person's hands while we "pretended" to ride a horse in a field with the sun shining on our faces and the wind blowing in our hair. The imagery of the pantomime produced animated responses from the seniors, whereby each senior rode his or her horse in a special way: serenely, quickly, jerkily, slowly, smoothly, gently, shyly, or with a resounding laugh and enthusiastic arm pumping as though being on a wild ride over hill and dale. Children in both groups demonstrated similar improvised movements in high, middle, and low spaces; adults mostly danced in the middle space, avoided the low space, and minimally explored high spaces with their arms.

On week 9, big and small movements were explored in conjunction with high, middle, and low levels. Compared to week 2, big and small movements were explored in a more flowing manner and more seriously by the children in the intergenerational class, in a more relaxed, smooth, and varied style by the adults in the intergenerational class, and in a more rhythmic, expressive, and serious way by children in the children's only class. High, middle, and low spaces were explored by children in the children's only class but both children and adults in the intergenerational group tended to confine their movements to the middle spatial level.

(2) Close together and far apart from other dancers

In the intergenerational group, two circles were formed such that the children were seated on the floor in the inside circle and the adults were seated in chairs around the children. The directions were to reach in closely towards the centre of the inside circle and then reach outward far beyond the outside circle. Although chaotic, all the children reached with full extension when reaching close or far; adults moved with full extension when reaching close (towards the children) but barely moved when reaching far (beyond the outside circle). In the children's only group, two circles were formed such that the boys were seated in the inside circle and the girls were seated in a circle around the boys. All but four children showed a lot of energy and seemed to 'throw' their bodies into the action, fully exploring the near and far spaces. Due to the chaos and the reckless behaviour this activity generated in the children, I

was concerned about possible accidental injuries so this activity was not repeated.

(3) Directions and Pathways

Most participants demonstrated a growth in dance knowledge with respect to directions and pathways through the use of props, self-exploration, imagery (in the pantomime activity), hand-drawn movement patterns, and different movement qualities. Although all methods inspired movement explorations, the use of props, especially scarves, stimulated the most variety in movement explorations by children. Adults followed a greater variety of movement patterns when using props and demonstrated self-initiated spatial patterns during "smooth/jerky" movement explorations.

Frisbees, introduced on week 2, prompted movement in some adults who previously had not responded to any movement suggestions. Following the dance teacher, everyone swirled frisbees in upward, downward, side-to-side, and circular patterns. In their own explorations, most of the children in the intergenerational class tended to use upwards swinging movements, many children in the children's only class added twirls, spins, throws, and rolls to the upwards swinging movements, and the adults did not pursue any self-initiated movement patterns. Scarves, introduced on week 3, inspired self-explorations of swirling, twirling, swaying, and figure eight patterns by the children in both groups. The adults mimicked my movement patterns with the scarf, but inserted their own movement dynamics and style into the motions such as swirling the scarf with grace, slowly moving the scarf as though in quiet contemplation, shaking the scarf with vigour, swinging the scarf in a steady pace, shaking the scarf before wearing it, flicking the scarf before tucking it into a pocket, or folding the scarf neatly before dozing off. Finally, streamers inspired the children to explore their own intricate movement pathways but adults tended to follow my movements.

Dancing without the use of props, participants explored the figure eight pattern, forward and backward directions, and circular movements on weeks 5 to 7. Some adults moved jerkily and were unable to produce smooth circular shapes; all children moved fluidly and expressively. The pantomime suggestion of painting on week 8 produced forward, backward, up-and-down, and circular patterns. The children alternated between large and small wrist and arm movements; the adults tended to "paint" with small wrist movements. By week 10, all participants were able to explore spatial patterns and "smooth/jerky" movement qualities without being led by me, the dance instructor. It was observed that adults contributed ideas to the children for drawing straight, curved, and/or zigzag dance patterns. The adults created their own movement patterns with their wrists and hands during the jerky movement explorations, moved less during the smooth movement explorations, and stayed in the middle spatial level. All children could dance with smooth and jerky movement qualities. However, some children in the children's only class experienced difficulty maintaining a smooth movement flow in response to wavy and straight line drawings

but could dance these designs using jerky movements. Interestingly, during the smooth movement exploration, these children spontaneously danced in high, middle, and low spatial levels. On the other hand, children in the intergenerational class could execute smooth movements better than jerky ones in response to the drawings and during the jerky movement explorations, they spontaneously danced in the three spatial levels.

Observational Issue 2

It was examined whether free flowing movements and pantomime would (a) encourage the expression of feelings through movement, (b) increase nonverbal communication, and (c) increase memory for movement sequences and patterns. Additional observations of 2(c) which were not included in the body of the paper are reported below.

Issue 2 (c). Free Flowing Movements and Pantomime would increase Memory for Movement Sequences and Patterns.

Scarf Dance

In the free flowing scarf dance some children pretended to be great matadors, some dancers pretended to be hanging out the laundry, and some dancers pretended to be sword fighting. Although practice time was given, few dancers in the children's only class repeated their original practised movements, tending to improvise their movements at the time of performance. In the intergenerational class, the children tended to repeat their practiced movements indicating they remembered their own movement sequences; the adults watched.

Ball Dance

On their first exposure to the ball dance, where everyone pretended to be dancers with props, skipping and finding their senior partners was very confusing for the children in the intergenerational class. Once the partners were found, however, everyone danced the sequence correctly. Most seniors became very animated when they participated in the activity. In particular, one senior woke up, beamed when she was presented with a bright yellow ball, and from that moment onwards, she no longer just sat and blankly stared. Instead, her eyes sparkled and she followed her partner's movement patterns with enthusiasm. However, another senior seemed confused about the actions as she kept throwing the ball across the room and did not follow her partner's movement patterns. When the ball dance was repeated two weeks later, several of the adults in the intergenerational class played catch with their child partners while the balls were distributed to the rest of the class members. Initially, some children forgot to include their adult partners but one adult mimicked the movements nonetheless. Later, each child shared the ball with his or her adult partner and most of the adults followed the actions of their child partners. The children seemed to remember the movement sequences as they correctly performed

the ball dance, but the skipping portion of the dance remained chaotic.

On their first exposure to the ball dance, children in the children's only class correctly performed the movement sequences. However, on their second exposure to the dance, the children acted silly, exaggerated their movements, grinned, and dropped or bounced their balls during practice. They needed constant coaching and few children followed the verbal instructions.

The Hoop Dance

The idea of everyone pretending to be dancers with props was continued in the hoop dance. Adults needed assistance either with reminders to hold the hula hoop or to have their hands physically placed on the hoop. Once everyone was hanging onto the hoops, all participants in the intergenerational class performed the dance sequences with some verbal guidance. In response to the instruction not to move the hoops too energetically or too high because some adults had arthritis and could get hurt, hoops were lowered and hoop actions were done more gently. The happy smiles coupled with the noisy atmosphere indicated that everyone was having fun. On the second exposure to the hoop dance, all the adults but one (who was asleep) participated by copying the children's actions and all the children danced the entire sequence correctly with a minimal amount of coaching. Furthermore, the children danced with gentleness and remembered not to bring the hoops up too high. Children in the children's only class needed more verbal guidance in the hoop dance than children in the intergenerational class. They followed the coaching but were unable to perform the dance without constant verbal reminders of the movements in the dance sequence.

Additional Observation:

On week 12 seniors performed for children and the children clapped. During the imaginary skipping rope activity, adults spontaneously commented on how believable the children's actions were and clapped encouragement and approval. The children offered no comments.

Issue 3: Listening and Responding to Music will enhance Self-expression and Creativity

Extra observations were noted in "Music without Imagery" and "Music and Imagery" categories. These observations are noted below.

- (1) Music without Imagery
 - a.) Dance/Freeze/Melt

On the first two exposures (on weeks 1 and 2) to the dance and "freeze" (stop moving) activity, some adults in the intergenerational class needed reminders to

move as they would tend to "freeze" and then watch the children without resuming the activity of dancing. However, when the children were not present, the adults would dance and freeze appropriately with me. Overall, everyone responded well to the music. In both classes, the actions of the dancers were limited to simple arm movements. The children in the intergenerational class moved their arms and legs up-and-down or side-to-side, tending to repeat the same actions. When prompted to explore high and low spaces, all the children in the intergenerational class alternated between everyone "freezing" in the high space or "freezing" in the low space. However, when dancing alone, the children became more expressive and froze in various levels. The children in the children's only class randomly froze in high, middle, and low spaces, thereby producing more interesting poses than the children in the intergenerational class.

On the third exposure (on week 7) to this activity, "melting" was added to the movement repertoire and most of the children in both classes (but none of the adults) responded appropriately to the music as they explored and discovered new movements. The children in the children's only class were especially creative: a group of boys froze and melted as a single unit and a group of girls explored different levels, creating a rippling, ever-changing "melting/freezing" shape. Unfortunately, the boys and girls dancing with me tended to copy me rather than explore and discover their own movements.

Finally, on the last exposure (on week 10) when dancers were requested to dance in either flowing or jerky movements and then freeze, several seniors created flowing arm stretches and displayed intricate jerky hand and wrist movements which corresponded to the changing musical patterns. The children in the intergenerational class responded appropriately to the melodic musical patterns but tended to repeat the same actions and freeze on the same spatial levels. (However, when they danced without the seniors, they became more expressive and did not copy each other.) The children in the children's only class created their own flowing movement patterns which meandered and drifted with the music. For all children, the jerky movement explorations were bouncy, quick, and light, echoing the effervescence of the music.

b.) Big/Small and Bend/Twist

No dancer seemed to be particularly aware of the music qualities on their first exposure to these movement concepts because no dancer showed changes in movement patterns, dynamics, or rhythm when the music changed. All the adults followed my movements but did not attempt to discover their own creative movements. The children in both dance groups explored "big/small" as well as "bend/twist" but limited themselves to the middle spatial level. On the second exposure, only the children in the children's only class responded to the music with their own unique movement qualities, but they still tended to remain in one spatial level.

c.) Heavy/Light

On both exposures to the "heavy/light" movement concept, everyone displayed an excellent sense of musicality, interpreting the changing qualities of the music with appropriate changes in body dynamics and weight expressions. The second musical selection was so strong and bold that the dancers needed no verbal cues to switch from heavy to light movements in response to the changing music. In the intergenerational class, the second selection of music seemed to create a symbiotic bond between some adults and children. In particular, while the children dropped their arms, dragged their feet, and sank their body weight to the floor, the adults dropped their torsos forward. When the children slowly rose to their feet and extended their arms in the air, some adults raised their arms overhead, almost as if they were taking the energy and directing it upwards while the children stood up. The children in the children's only class danced with big, light, upward twirling moves and heavy swinging-and-swaying and slowly "melting" onto the floor moves.

d.) Streamer Dance

In response to the music, the children in the children's only class twirled, slashed, stabbed, flicked, flickered, and swirled the streamers. They walked and hopped across the room, spontaneously exploring back, high, and low spaces without being prompted.

Adults and children in the intergenerational class tended to follow me instead of following the music in their own dance patterns but as noted by the second coder:

"None had to be prodded or jump-started. All had their own style and were responsive."

(2) Music without Imagery / Music with Imagery for the Same Concepts

a.) Rise/Sink

For the "rise/sink" movement concept, imagery such as pretending to sink in mud or rise as smoke inspired the seniors to lower their torsos and raise their arms in response to the changing music and stimulated all the children in both classes to dance creatively to the imagery as well as to the changing music. Without the imagery to provide a focus, the activity and noise level of all participants increased to such an extent that the dancers seemed oblivious to the music.

b.) Swing

Pantomime suggestions for "swing", which included riding a roller coaster, swinging in a hammock, and swinging on a trapeze, produced animated expressions of suspension and release. When no imagery was given all participants tended to copy my moves rather than explore their own swinging creations. Nonetheless, they continued to express the sensation of swinging, suspending, and releasing with their

own movement dynamics. The musical response was appropriate but did not fully embody the essence of suspension and release found in the music.

(3) Music with Imagery

a.) Scatter/Gather

All the dancers explored the "scatter/gather" concept through the imagery of clouds gathering, feathers scattering, gathering flowers, and scattering rose petals and responded very well to the changing music. In the later weeks of the dance program, the "scatter/gather" concept was incorporated in the "Bird Nest Dance" where the children fell out of the nest and scattered all over the room, then gathered back to the nest and in a "Rain Drop Dance" where the children pretended they were rain drops that had gathered together in a big cloud and swirled around the room, scattering drops of rain (children) in many places, then were pushed together by the wind to form a big puddle which evaporated and gathered into one large cloud. Although a bit noisy when dancing in the gym, all the children performed the actions of the imagery and dances very well and responded to the changing music by synchronizing wilder dancing with wilder musical rhythms and quiet, drifting dancing with quiet, soft music.

The adults watched the "Bird Nest Dance" and spontaneously responded to the "Rain Drop Dance" by raising their arms up over their heads, then opening them out to the sides before slowly dropping them into their laps and bending their torsos forward.

b.) Painting

In a painting exercise, the dancers remained stationary and responded to the music by pretending to hold a brush and "paint" in small dabbing movements that gradually grew into large sweeping moves that were synchronized with the music which was building to a crescendo. The adults pretended to assist the children in their paintings but their movements were generally much smaller and done with open hands. The second coder noted that "although the movements generally seemed limited and static, the arms and upper body movements were graceful and free flowing rather than restricted and tight". In general, the children in the children's only group were very expressive, painting in bold brush strokes and exploring their movements with more spatial and dynamic variety than the members of the intergenerational class.

Program Evaluation

Children: Intergenerational Class and Children's Only Class Evaluations

Midway through the program, the favourite activities for the children in the intergenerational class included moving, dancing, seeing or dancing with the

residents at Halcyon Home. hopping, leaping, or spinning, "dancing/freezing", and dancing with scarves or frisbees. One child enjoyed "when it was done". At the end of the program, favourite activities included jumping, leaping, spinning, star jumping, and sliding, dancing with bubbles, hoops, scarves, and streamers, the "sculpture" activity, dancing and mirroring with the seniors, moving, and eating cookies.

Midway through the program, favourite activities for the children in the children's only class included miming, jumping, leaping, spinning, and running, dancing with the balls and scarves, dancing with friends, "all the activities", performing, and "light/heavy" dancing. At the end of the program, favourite activities still included miming, jumping, spinning, dancing with balls and scarves, "all of it", and "light/heavy" dancing. Additional favourites included hopping and "melting".

Intergenerational Class: Adult Participants' Evaluation

Midway through the program, favourite activities included free movement, dancing, the music, exercising and meeting people, "waving the hands", and waving the scarves and balls as "they put everyone on the same level". At the end of the program, many adults gave more than one activity that they enjoyed the most. These activities included dancing and the music, the music and streamers, the children and the streamers, balls, and hoops, and "everything". Other adults reported that they enjoyed associating with other people and dancing together. A few adults did not comment.

Observational Section: Additional Themes

(e) Observations of Participants' Behaviours After Dance Class Intergenerational Class

With the passing weeks, the seniors offered more comments about the dance class and their enjoyment of it. For instance, by the third week, two adults complimented the children by stating they thought the children "had come a long way in such a short time since the last class", five adults stated they were happy to see the children, one adult was happy to have come, one adult loved the class and thanked me very much, and one adult commented that I enjoyed the time together as much as they did. (I agreed.) From the sixth week onwards the adults offered comments from time-to-time, including that they looked forward to the activities, the music, and the children. Some adults declared they enjoyed the music the pianist played and one adult commented that it was good for everyone to interact, especially in an institutional setting. A few adults commented that even though their physical complaints were still present (i.e. having a sore stomach or arm or having difficulty breathing), they felt better after participating in the dance class. Occasionally adults were happily humming a tune after class.

Occasionally, some adults seemed confused or upset after class. For instance, on week 8, two adults were not as happy as usual but did not seem to know why, one adult had forgotten that she had danced with the children, one adult (who had occasionally wandered away during previous dance classes) stayed for the duration of the class but looked somewhat disoriented and sat for quite some time after the class was over, and two adults were concerned about paying for the classes. I assured them that payment was unnecessary but when one adult persisted I stated that all I needed for payment was a big smile. He and another adult (who had been watching and listening) both gave me a radiant smile which I returned.

Finally, on two occasions the school teacher contributed her own dance activities after the official "dance program" had been completed for the day. Specifically, on week 6, the children demonstrated dance activities for the adults; on week 7, the children paired up with the adults and taught them the dance moves. (The teacher informed me she would be continuing a dance program after my research was completed.)

Appendix 15

Letter of the Summary of Results Presented to the Community Participants (Parents, Superintendent, Seniors)

To the parents of the children and to the elderly adults involved in the Creative Dance project in 1996:

I wish to thank all the children and adults for participating in this program. It was a pleasure to teach dance to all of you and to be a part of this journey of discovery. As you may remember, I was examining the effects of creative dance on physical skills, cognition (thinking), affect (emotions), and social skills. After nearly a year of coding the information, running computer analyses, and compiling and analyzing video-taped observations, the results are ready to be shared with you and the community. Included below is a condensed version of the results, highlighting the major findings. A detailed version will be submitted to the Arrow Lakes School District, c/o the Superintendent, and will be available for reading after my dissertation defence in September, 1997.

In this study, 5 groups (78 dancers/exercisers) participated: Nakusp children who danced without seniors, Nakusp children who danced with seniors, Burton children who participated in physical education classes during the 12-week dance program in Nakusp (and danced after the 12-week program had completed), Nakusp seniors who danced with children, and New Denver adults who participated in an exercise class. For ease of understanding, I divided the research into several sections and have reported the results accordingly.

1) Creative dance enhanced motor skills in adults and children.

Adults. Physical 1 Test indicated that both creative dance and exercise improved physical skills that were related to walking gait and balance (walking, sitting, and standing). Physical 2 Test indicated that creative dance, but not exercise classes, improved the adults' physical skills measured by this test (i.e. flexibility and smoothness of movement in shoulders, hands, arms, legs, and feet.)

Children. The Bruininks-Oseretsky Test of Motor Proficiency indicated that although the groups of children began at different physical skill levels, children in both creative dance classes and the PE class improved their motor skills.

2) Creative dance increased cognitive abilities in children but not adults.

Adults. Using the Wechsler Adult Intelligence Scale-Revised Performance subtests, it was found that although the scores increased for both groups and Nakusp dancers' scores were higher than New Denver exercisers' scores, the increases and the differences between groups were not statistically significant. In other words, dance and exercise did not increase cognition. However, average scores did not decline, therefore it is possible that physical activity may help maintain cognitive abilities. It was observed that although many adults in

both groups had difficulty seeing the details on the cards, at the end of the program, all adults took less time to complete the tests, understood the directions more clearly (as they asked fewer questions), and were more motivated to participate (as they were more willing and determined to complete the tasks).

Children: Using the Wechsler Intelligence Scale for Children-Revised Performance subtests, all three groups began and ended the program at about the same cognitive level and all three groups increased their scores (from an average of 106 to 119). While it is unclear whether practice effects (that the children may have remembered or learned some of the subtests) or physical activity influenced the increase, the possibility exists that physical activity may increase cognitive abilities.

3.) Creative dance enhanced positive affect in adults and maintained positive affect in children.

Adults: Movement, whether dance or physical exercise, resulted in an increase in positive emotions and a decrease in negative emotions following physical activity. In the first two weeks, more Nakusp dancers than New Denver exercisers reported a move towards feeling "good" after class and more Nakusp dancers reported feeling, "relaxed", and "very good" after class. With respect to depression scores, overall depression scores were low for Nakusp dancers and decreased from the "mild-moderate depression range", to "normal" range during the 12-week program whereas the New Denver exercisers remained within the "mild-moderate" depression range, suggesting that there may have been long term effects of the dance program on reducing depression.

Children: All groups reported feeling quite happy before and after class, leaving little room for improvement. Similarly, the Cratty test showed that, on average, all the children scored high scores in self-concept (feeling good about themselves) throughout the 12-week program. Therefore, physical activity does not increase affect in happy children who have a high self-concept but as no decreases in scores were seen, physical activity may maintain these positive attributes.

4.) Both the intergenerational class and the children dancing without adults reported similar positive emotions and self-concepts after participating in the creative dance classes.

As scores were similar for both groups, it would appear that the presence or absence of seniors did not significantly influence the self-reported feeling of happiness or self-concept in children participating in creative dance. However, observations of increased positive interactions between the seniors and children after the midpoint of the program coupled with increases in self-concept and happiness scores, seemed to imply that the presence of seniors did have a positive impact on the children in the intergenerational class.

Overall, both groups of children demonstrated socialization skills, self-mastery with respect to physical self-expression, and positive self-perception but only the children in the intergenerational class demonstrated an increase of positive sharing and caring behaviours

to fellow classmates, especially to the seniors. It is believed that this trend may have been due to their exposure to and interactions with the seniors, an opportunity for interpersonal growth not experienced by the children who danced without seniors.

5.) Creative dance enhanced several social skills.

Creative dance activities provided an opportunity for participants to demonstrate their ability to cooperate, communicate (by following directions and responding to music), to feel a sense of belonging to a group (by participating), to lead, to follow, and to be aware of others while dancing. As the weeks progressed, more children and adults watched each other perform, suggesting that both young and old participants were increasing their ability to pay attention and to concentrate on the performers.

6.) The presence of the elderly positively influenced the social behaviour of children in the intergenerational creative dance class.

It seemed creative dance was a vehicle to promote group cohesion for both dance groups. However, only the children in the intergenerational class were placed in a position of responsibility with respect to dancing in a gentle manner with the seniors who needed and accepted care and guidance from their child partners. Interestingly, the care and tolerance they demonstrated such as choosing simple careful ways of moving with adults and listening attentively to directions (as they sometimes needed to explain directions to the adults) seemed to carry over to the times they danced without adults. In addition, there was an increase of quiet behaviour and respect for limitations and they tended to dance in a less exuberant, wild manner than the children in the children's only class suggesting the presence of seniors may have tempered the spirit of the intergenerational child dancers to accommodate the slower movement pace and limitations of the seniors in the class.

At the midpoint of the program, by engaging in a performance piece (creating, practicing and performing movement ideas) as equal partners, a shift in social interactions occurred in the intergenerational class: most of the adults and children began to share responsibility during the creation and performance of their group endeavours. On the other hand, although the performance pieces were danced in cohesive group actions, the children in the children's only group were less focused on the process of creating a performance piece and did not demonstrate an attempt to equally contribute to the group during the practice session.

7.) Examining the relationship of physical skills, cognition, and affect.

Adults. Improvement in physical (dance related) skills predicted an improvement in cognitive skills in Nakusp dancers; a deterioration in physical (dance related) skills predicted increased depression in New Denver exercisers.

Observations.

1) Participating in creative dance increases dance knowledge by:

-learning more about moving body parts through explorations in nonlocomotor and locomotor movements

(Specifically, all participants danced with a greater variety in movements; adults increased the number of body parts they moved during nonlocomotor actions and moved more fluidly and smoothly; and children increased in executing accurate nonlocomotor movements and locomotor movements (i.e. jump, hop) and moved more spontaneously to different musical rhythms.)

2) Participating in creative dance increases dance knowledge by:

-learning more about the spatial environment through creative dance explorations of "big/small" and "directions/pathways" with props.

(Also, all the children explored "high/low" spatial levels and some adults and some children explored directions and pathways through imagery, hand-drawn movement patterns, and "smooth/jerky" movement explorations.)

3) Participating in creative dance did not increase dance knowledge by:

-learning more about body alignment as no dancer adjusted his/her own body posture/alignment in the 12-week program.

4) Participating in free flowing movements and pantomime:

- (a) encouraged the expression of feelings through movement in most participants,
- (b) increased nonverbal communication in most children and a few adults, and
- (c) increased memory for movement sequences and patterns in children in the intergenerational class (perhaps due to having the responsibility of guiding the adults in various activities)

5) Music sometimes enhanced self-expression (exploration and discovery) and creativity (selecting and combining movement sequences).

Adults took longer to respond to movement suggestions. Music with stronger, more obvious rhythm changes and varying dynamic qualities prompted more dancers (children and adults) to respond more expressively, creatively, and with greater musicality than more subtle music. Overall, imagery and music together (i.e. sinking in mud and rising as smoke) produced the most self-expression and creativity.

Dance Program Evaluations: Participants and staff (teachers and nurses) were asked to evaluate the program at the midpoint and end of the program. Their responses indicated that the creative dance program was successful and appropriate for the participants.

Children: More children in the intergenerational class than children in the children's only class reported positive experiences at the midpoint of the program, but by the end of the program most children in both classes reported positive experiences. For instance, most of the children reported feeling more happy, less sad, less tense, and less tired following dance class, that they had made some new friends, and that their favourite activities included performing locomotor skills and dancing with props.

Adults. Most adults reported feeling better (less lonely, less tense, more enthusiastic, and more cheerful) and that the exercises helped them to move better, that it was easier to relax and breathe deeply, and that it was fun to dance with the children and other adults. However, they reported no change in optimism, tiredness, self-assurance, or confusion, and few adults reported that it was easier to sleep, bend, stand on their feet, walk, sit, or write, and there was a decline in exercising on their own. Thus, it appears that while the creative dance program had positive benefits, there were limits in how much improvement could take place in 12 weeks. Like the children, most adults enjoyed the props. They also liked dancing with partners, free movement dancing, the music, and meeting people.

Teachers. The school teacher of the intergenerational class reported that most children at the midpoint of the program looked forward to the dance sessions and showed positive changes after dance class such as improvements in flexibility, mobility, coordination, and posture, alleviation of anxiety, and improvements in self-image and attitudes towards other children in the class. By the end of the program, many children showed an alleviation of attention demands and improvements in memory, concentration, alertness, and attitude towards their teacher and the seniors. Thus, it appears that learning creative dance with seniors had a positive affect on the children during the dance class as well as transferring to the regular school day.

No such transfer of physical, social, and emotional changes from the dance class to the regular class was noted by the teacher in the children's only dance class. Unlike the children in the intergenerational class who took on the responsibility for guiding the seniors through the dance activities and received warm approval and encouragement from the seniors, the children in the children's only class did not have the opportunity to develop such a responsibility and did not transfer any of the skills they may have gained. Thus, it would seem that the presence of seniors may be instrumental in transferring positive learned behaviour to other situations. Nonetheless, the comments from the teacher revealed that positive changes occurred during the dance class including that the children enjoyed the dancing and that by the end of the program they showed a willingness to work in groups and were cooperative and creative.

Nursing Staff. The nurses reported that about half of the adults showed positive physical, social, or emotional changes such as improvements in posture and flexibility, self-image and alertness, an alleviation of attention demands, and improvements in attitude towards staff and other residents. No changes were noted in appetite, sleeping habits, bladder control, mobility, coordination, and attitude towards family members. The staff also noted that most of the adults enjoyed the dance activities (especially the social interactions) and a few adults enjoyed watching, seemed happier after class, or seemed to need the stimulation of the class.

Additional Themes/Discoveries:

(a) Teaching issues. The elements of making a successful experience for dance participants included: appropriate pacing of the class, capturing the attention of the students, praise, tolerance of differences, modelling appropriate behaviour, emphasizing strengths,

responding to the dancers' special needs, challenging abilities and testing students' limits, and maintaining a positive environment.

(b) Reactions to breathing/relaxation exercises: For most participants, breathing and relaxation exercises promoted correct body alignment and quietness, and combining breathing and imagery with relaxation promoted quiet calmness. During the activity, most children were fidgety and somewhat noisy but following the activity most children sat quietly for a few seconds or moments. All the adults looked noticeably calmer and more relaxed.

(c) Attitudes towards the dance experience: Social interactions increased steadily in the intergenerational class. In the first week, the participants smiled at one another; by the third week the seniors encouraged each other and the children. Later, the children and adults engaged in happy exchanges when participating in bubble blowing and from the eighth week onwards, everyone spent some time socializing between some of the dance activities. On the last week both children and adults were encouraging each other and expressing appreciation for each other's efforts.

Children in the children's only group tended to be more exuberant, noisy, disruptive, more reluctant to dance in a particular group and more inclined to collide with one another. Over time, they became more attentive, exhibited less disruptive behaviour, and were less inclined to collide with one another.

(d) Observations of participants' behaviours before dance class: Over time, more children escorted the adults into the dance room and it took less time for the seniors to arrive into the room and be ready to dance. The adults became more outgoing and happy and were very cheerful and perky when the children were in the room. When seniors danced without the children, they eventually settled into the routine of staying in the lounge area to dance after their church services. When the children danced without the seniors, they tended to maintain their quiet behaviour. The children in the children's only group tended to alternate between quiet and noisy entrances but always seemed eager to start and had a hard time containing their excitement.

(e) Observations of participants' behaviours after dance class: After class, I shook each adult's hand and thanked each adult for coming. All the children in each class were thanked and complimented on their behaviour. In the intergenerational class, most adults appeared alert, excited, and cheerful; the children appeared full of energy and politely waved good-bye. The seniors offered comments about their enjoyment of the class, the music, the children's progress, and their happiness to see the children. In the children's only class, a few children waved or said good-bye as they left the gym.

Overall Summary: It appears that the dance program was not only appropriate to the needs of the participants, it was also successful in stimulating or improving physical movements and in stimulating happiness and/or positive social interactions within the dance setting, and that these positive behaviours transferred beyond the creative dance setting for some of the intergenerational dance members. Thus, creative dance may be a valuable instrument for stimulating or enhancing physical, social, and/or emotional growth in youngsters and seniors alike

Once again, let me thank-you for sharing this time of exploration and discovery. I had a wonderful experience throughout the program and appreciated everyone's whole-hearted contributions. Without everyone's participation and candour, this project would not have been possible. To the community, but especially to all the dancers, I extend good wishes and many more joyful experiences through dance!

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