

Early Childhood Teachers' Content Knowledge on Movement Education

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Abstract

The purpose of the study was to examine early childhood teachers' content knowledge of movement education. The subjects, 60 early childhood teachers, were asked to draw concept maps about early childhood movement education. Their concept maps were analyzed in terms of superordinate and subordinate concepts by contents and frequency. The results were as follows. First, 263 superordinate concepts were shown, and they were categorized into 10 representative terms (body movement/health, music, expression, movement type, movement element, games, integration/arts, social studies, tool/instrument, and math/science). Second, 2,186 subordinate concepts were shown, and running, movement, jumping, musical instrument, and expression were frequently shown. In conclusion, early childhood teachers' content knowledge of movement education were various but insufficient in aspect of its systematic organization.

Keywords: *Movement Education, Concept Map, Early Childhood Teachers*

1. Introduction

Human movement begins right from the interior of the womb, and physical movements during childhood are a means of interactions with external environments as well as a source of joy [1]. Types of movements might be classified in various ways by scholars. Most scholars, though, agree with that movement types can be divided mainly into basic areas and applied areas [2]. Basic areas include basic movements and elements. Basic movements are divided to non-locomotive movement, locomotive movement, and manipulative movement. Basic elements include space, time, force, and flow. Applied areas include creative body expression, imitative expression, exercises, and games with instruments.

Early Childhood movement education is defined as education that promotes young children's general development by helping them gain knowledge of movements through bodily movement and participation in movement activities based on meaningful concepts related to movements [3]. This is regarded as an integrated education method for balanced growth of children as it takes into consideration the general development from basic motor skills to creative physical expressions and to movement concepts [4]. Furthermore, early childhood movement education helps young children develop aesthetic senses through expression and presentation courses in connection with music, arts, and story-telling. It also can be extended in combination with other subjects such as music, art, and literature [5].

Previews research has reported that early childhood movement education contributes to young children's development in various areas such as motor, emotion, social, and cognitive development [6-8]. First, early childhood movement education plays a key role in motor skill development. It contributes to balanced development of body parts including fine and gross motor developments, physical development like

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interactions of senses, and various motor abilities such as balance, flexibility, and muscular strength. Young children's development of child motor abilities also affect their health, motor skills, and physical control thereafter. Second, children experience a sense of achievement, self-confidence, and joy from their physical control abilities that they develop through movement education. Particularly in childhood, language development has yet to be completed. Various emotional expressions through bodily movement can result in sound emotional relaxation and joy. Children can acquire sense of self-confidence through controlling their body parts just as they intend while participating movement activities. As a result, they can appreciate positive relations with surrounding environments and develop social skills accordingly.

Third, various movement education programs help children recognize other children sharing the same space, learn to wait for their own turns, and improve their social skills in the given opportunities of social cooperative interactions. Fourth, movement activities help young children develop their thinking and learning abilities. Children may have many opportunities of manipulation while exploring and finding things through various physical activities. Fifth, early childhood movement education contributes to supporting creative and aesthetic development. A variety of movement-based expressions and appreciation activities provide a wealth of opportunities of imagination. They also help young children develop creative expressions and authentic problem-solving abilities.

In recognition of the importance of early childhood movement education, Nuri Curriculum for young children in South Korea emphasizes movement education [9]. Nuri Curriculum is a nation-level curriculum for children aged from 3 to 5. It consists of 5 main areas. Among those, two areas are relevant to movement education; 'Physical Exercise/Health' and 'Artistic Experience.' The area of 'Physical Exercise/Health' aims to help children recognize their body parts positively, participate in physical activity pleasantly, develop basic physical strength and basic motor ability, and develop healthy and safe daily life habits. In the area of 'Physical Exercise/Health,' the content groups of 'recognizing body parts,' 'physical control and basic exercise,' and 'participating in physical activity' are directly related to movement education. The area of 'Artistic Experience' aims to help children find various artistic elements while appreciating nature and things, express their feelings toward those elements in creative ways, develop skills for artistic activity with aesthetic interest, and develop abilities to understand and respect the variety of aesthetics. In the area of 'Artistic Experience,' the content groups of 'artistic expressions' are relevant to movement education.

Despite the importance of early childhood movement education, however, children in the modern society are exposed too much to computers, TVs, or smart phones throughout the day as the social environments and lifestyles have changed. As a result, they usually spend most time indoors rather than outdoors [4]. Since play environments have also been changed, physical activity has reduced while pediatric diseases such as obesity as well as deterioration of basic physical fitness have increased accordingly [8]. In addition, it is reported that the percentage of dynamic activity is lower than that of static activity in education activity of child education institutions [6]. This is partially because the demands for academic skills and early learning achievement have increased.

As the general lifestyle and educational environments around children have resulted in decreasing their physical activity, the importance of movement education in a child curriculum should be more emphasized. In the field of child education, the key element of movement education is childhood teachers. Since the most important human resource in curricula is the factor of teachers, early childhood teachers' content knowledge affects the efficient implementation of a national curriculum to a significant degree [10-11]). For efficient child movement education, therefore, it is required for teachers to practice systematic methods based on learning objectives and plans that are in line with children's stage of development [12]. Particularly regarding acquisition of movements, continued and gradual instructions are necessary rather than a one-time lesson. It is reported that young children who had attended movement activities conducted by teachers with well-defined and rich content knowledge, their skills of body movements were improved significantly than those who had not [13]. Therefore, the present study aims to examine childhood teachers' content knowledge of child movement education.

As roles and content knowledge of teachers are emphasized, various methods have been proposed to measure the content and structure of knowledge among teachers. One of the methods relatively often used is the concept map proposed by Novak and Gowin [14] [15]. The concept map represents individual's concepts

of a certain topic in visual and graphical forms]. This method is reported as a useful instrument to measure the content and structure of teachers' knowledge [16]. Although there has been one study in which Lee and Kang [17] utilized the concept map of early childhood movement education, their study had some limitations in that the subjects were only 18 teachers and were sampled from specific types of daycare centers such as public ones.

Based on the research review above, the present study aims to examine early childhood teachers' content knowledge of child movement education by analyzing concept maps relevant to child movement education. We expect that the study results would be useful in development of successful teacher education programs for early childhood movement education. We proposed the following research questions

Research question 1: What are the contents and frequency of superordinate concepts presented in movement education concept maps of early childhood teachers?

Research question 2: What are the contents and frequency of subordinate concepts presented in movement education concept maps of early childhood teachers?

2. Method

2.1 Participants and Procedure

The participants of the study were 60 early childhood teachers working at daycare centers and kindergartens located in the metropolitan area. Of the participants, 61.7% were aged between 20 and 29, 30.0% were between 30 and 39, and 8.3% were between 40 and 49. In terms of teaching experiences, 53.3% had 1 to 3 years, 23.3% had 4 to 6 years, 13.3% had 10 years or more, and 10.0% had 7 to 9 years. As to the level of education, 51.7% graduated from a four-year university, 45.0% a 2 to 3-year college, 1.7% a graduate school, and 1.7% a high school.

A preliminary survey was conducted using 2 early childhood teachers in November 6 through 10, 2017 in order to check out the average time that it would take and the processes in general. The data collection was conducted between December 18, 2017, and February 28, 2018. The researcher visited the early childhood education center where the participants were working and conducted individual interviews. The participants were given the consistent structured instructions about how to draw concept maps with an example of a theme other than early childhood movement education, and then asked to draw their own concept maps on early childhood movement education. No restrictions were specified regarding the total number of concepts and time limit. Once the participants started drawing concept maps, they were asked to fulfill some questions on their background information. They were allowed to revise the contents of their concept maps before submitting them.

2.2 Instrument

In order to investigate early childhood teachers' content knowledge on child movement education, the method of concept map proposed by Novak and Gowin [14] was utilized. The participants' concept maps represented their content knowledge and cognitive structures. The level of knowledge is expressed hierarchically depending on concept map components including superordinate and subordinate concepts. The most general and comprehensive content knowledges are shown in superordinate concepts while specific and sub content knowledges are arranged in the lower levels of subordinate concepts.

2.3 Data Analyses

Early childhood teachers' content knowledge of movement education was investigated by analyzing the superordinate and subordinate concepts as Ahn and Kim [18] did. Specifically, first, superordinate concepts were all recorded and categorized. Representing concepts of each category were then derived in order to examine the contents of superordinate concepts. The frequency of each representing concept was calculated. Second, subordinate concepts presented in the concept maps were all recorded and their frequency was calculated. Subordinate concepts of higher frequency were presented.

3. Results

3.1. Contents and Frequencies of Superordinate Concepts

Superordinate concepts are in the highest hierarchical level of the concept map. They reflect concepts regarded by childhood teachers as important in the context of early childhood movement education. In this study, it turned out that early childhood teachers used 263 superordinate concepts in total. As these concepts were categorized with the representing terms designated, 10 representing terms in total ('Movement Type,' 'Movement Element,' 'Physical Exercise/Health,' 'Music,' 'Integration/Art,' 'Social Studies,' 'Math/Science,' 'Expression,' 'Tool/Instrument,' 'Games') were selected (Table 1). As to the frequency(%) of each representing term, 'Physical Exercise/Health' was 25.5%(67), 'Music' 20.9%(55), 'Expression' 13.3%(35), 'Movement Type' 10.3%(27), 'Games' 6.8%(18), 'Integration/Art' 6.5%(17), 'Social Studies' 3.0%(8), 'Movement Element' 9.2%(24), and 'Tool/Instrument' as well as 'Math/Science' 2.3%(6) respectively in order. This result indicates that in child movement education, early childhood teachers recognized the importance of each factor in the following order: 'Physical Exercise/Health,' 'Music,' 'Expression,' 'Movement Type' 'Movement Element,' 'Games,' 'Integration/Art,' 'Social Studies,' 'Math/Science,' and 'Tool/Instrument' in order.

Table 1. Contents and Frequencies of Superordinate Concepts

Area	Superordinate Concepts	Representative Terms	n (%)	Rank
Basic Area	Types of Movements(13), Basic Movement(4), Gross Motor Movement(4) Fine Motor Movement(2), Loco Motion(2), Non-loco Motion, Functional Movement,	Movement Type	27 (10.3)	4
	Space(11), Elements of movement(4), Place(3), Environment(2), In-door, Time, Flow, Power	Movement Element	24 (9.2)	5
Application Area	Body Activities(38), Movement(7), health(6), Physical Education(6), Body Expression(5), Outdoor Activity(4), Daily life	Physical Exercise/Health	67 (25.5)	1
	Music(25), dance routine(14), Listening(5), Musical instrument(4), Dance(4), Singing(3)	Music	55 (20.9)	2
	Integration/Art(12), Art(4), Drama	Integration/Art	17 (6.5)	7
	Relationships(4), together, Society, Young children, Cooperation	Social Studies	8 (3.0)	8
	Math/Science(2), Cognition, Nature Phenomenon, Manipulation, Learning	Math/Science	6 (2.3)	9
	Expression(17), Creativity(7), Emotion(4), Ways(3), Efforts(2), Nature(2)	Expression	35 (13.3)	3
	Too;(3), Instrument(2), teaching materials	Tool/Instrument	6 (2.3)	9
Games(15), Forms(2), Play	Games	18 (6.8)	6	
Sum in total			263 (100.0)	-

3.2. Contents and Frequencies of Subordinate Concepts

Subordinate concepts are relatively specific and connected to the lower level in the concept map. It turned out that early childhood teachers used 2,186 subordinate concepts in the concept map of early childhood movement education. The top 15 terms of subordinate concepts in order were as follows: 'running,' 'rhythmic movement,' 'jumping,' 'musical instrument,' 'expression,' 'movement,' 'body exercise,' 'emotion,' 'walking,' 'gross motor movement,' 'chant,' 'non-locomotor movement,' 'finger play,' 'games,' and 'fine motor movement.' This result indicates that early childhood teachers had various subordinate concepts of movement education, and that they considered 'rhythmic movement,' 'jumping,' 'musical instrument,' 'expression,' and 'movement' particularly important.

4. Conclusion and Discussion

The objective of the present study was to analyze early childhood teachers' concept maps of movement education and to examine their content knowledge of movement education. In order to fulfill this study objective, the content and frequency of superordinate concepts and subordinate concepts presented in concept maps were analyzed. Major findings of this study are as follows: First, as the frequency of superordinate concepts of early childhood teachers regarding movement education was analyzed based on concept maps, it turned out that early childhood teachers used 263 superordinate concepts in total. As these concepts were categorized, 10 representing concepts were derived. As these concepts are presented in order of frequency, they were 'Physical Exercise/Health,' 'Music,' 'Movement Type,' 'Movement Element,' 'Games,' 'Integration/Art,' 'Social Studies,' 'Math/Science' and 'Tool/Instrument.' Second, childhood teachers used 2,186 subordinate concepts in total. Among them, 15 concepts of higher frequency in order are as follows: running, rhythmic movement, jumping, musical instrument, expression, movement, body exercise, emotion, walking, gross motor movement, chants, non-locomotor movement, finger play, games, and fine motor movement.

One of the major findings of the study is that early childhood teachers had more conceptual knowledge related to 'Physical Exercise/Health' than others. This results supports the previous study [19] which reported that early childhood teachers felt relatively comfortable to perform body regulation and basic exercise in the area of physical exercise and health. Another major content knowledge of movement education that early childhood teachers viewed as important was 'Music.' Children find joy while expressing themselves in various musical activities, establishing the basis for artistic development through such voluntary and creative experience. Basic elements of music such as rhythm and melody are appropriate for physical movement as a way of expression. In consideration of the level of cognitive development in this stage of life, movement activity can be utilized as an excellent ways to experience and learn musical elements. While listening to music and expressing themselves with movements, young children can express their emotions and feelings as well as experiencing imagination in a natural setting. Thus, viewing music as a major content knowledge in the context of child movement education is appropriate.

In contrast, the level of early childhood teachers' content knowledge of the superordinate concept 'Integration/Art' was relatively low. Nuri Curriculum includes contents of fine art, movement, and dance in its area of 'Artistic Experience.' It also suggests early childhood teacher to provide integrated artistic experience such as role play. Therefore, childhood teachers need to apply a more integrated approach when practicing movement education. In addition, even though Nuri Curriculum includes contents of 'appreciation of arts,' no superordinate concept relevant to it was presented. It is suggested, thus, to include various types of content knowledge related to artistic experiences in teacher education programs for early childhood teachers. It also turned out that while childhood teachers had various concepts in basic areas of movement education, only a few of them viewed concepts such as 'Movement Type' and 'Movement Element' as superordinate ones. This indicates that it is necessary for them to increase knowledge of movement types and elements as part of their basic knowledge for movement education. Additionally, it turned out that early childhood teachers had relatively few superordinate concepts of social studies and math/science. In consideration of the previous finding [20] that movement education could contribute to cognitive development of children such as social skills and problem-solving skills, this finding indicates the importance of integrating contents of other subjects such as social studies, mathematics, and science as well as music and expression when early childhood teachers practice movement activities.

In summary, findings of this study showed that early childhood teachers had a wealth of superordinate concepts and subordinate concepts of movement education, but the levels of concept knowledge of major concepts were varied among teachers. Besides, systematic and hierarchical elements in the content organization were insufficient. Since early childhood teachers' content knowledge of movement education affects planning and execution of curricula for child education, findings of this study need to be reflected in planning teacher education programs.

There are some limitations in this study, and further research is required. Concerns about the convenience sampling method raise the issue of generalizability. Another limitation involves the restriction of the participants' residence on the metropolitan area. Further researches need to take factors such as a representative

national sample and multiple data sources into account. We suggest that future researchers focus on examination of how early childhood teachers' content knowledge of movement education actually affects their implementation of movement education.

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