

Comparing the Effect of Visual Perception of Autism with Mental Retardation using Crafts Programmes

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Abstract

Objective : We try to show the necessity of crafts and arts comparing visual perception of autism with that of mental retardation using craft programmes.

Methods : We applied a visual perception programme after sorting 10 autism and 10 mental retardation according to criteria. A used craft programmes are consulted and produced by specialist who are applying crafts as treatment or have experienced applying crafts. The items included potter, mobile art, wheat flour kneading, clay, corrugated cardboard work and color mix work. We applied the programmes twice a week during 4 weeks and used motor-free visual perception test-third edition(MVPT-3) to investigate the effect before and after treatments.

Results : First, craft programmes had effect on both autism and mental retardation. Second, craft programmes had more effect on mental retardation.

Conclusion : We could know that craft programmes influenced on visual perceptual development of autism and mental retardation.

Key words : Crafts Programmes, Autism, Mental Retardation, Visual Perception

I. Introduction

Modern society is rapidly increased the number of acute and chronic patients and the disabled resulting from highly advanced socialization and economic growth. The children can normally accept many kinds of sensory

stimulation from the environment and integrate the sensory and grow up with developing to ability of adapt to environment.

But in case of developmental disability, they have difficult with recognition and perception in brain, and do not related sensory information to motor function resulting from pathology of brain

(Ryu, 2000). Developmental disability includes autism, mental retardation, brain injury, attention deficit hyperactivity disorder(ADHD), learning disability, immaturity, cognitive disorder, dyslexia, cerebral palsy, epilepsy and so on.

Leo Kanner began to use the term, autism, which had never seen before 1943 and he expressed the children with disease of new type(Bahn. & Lee, 2005). The causes of autism classified birth factor, immunology factor, neurological factor, and virus infection peculiarly.

Mental retardation is identified disability which have significant limits of adaptative behavior like intellectual capacity and conceptual, social, realistic adaptative technique according to american association on the mentally retardation(AAMR)(Kim, 2009).

We had used mental retardation before, but changed intellectual disability now. The intellectual disability is also called mental deficiency, mental subnormality, and subintelligence.

The causes are unknown origin that forms 30~40% first of all and known origin that includes genetic factors such as down syndrome, fragile x syndrome, prader-willi syndrome, a hetero chromosome, amino acid metabolic disability, rett syndrome, and neurocutaneous dysplasia, prenatal factors like prenatal infection, fetal alcohol syndrome, prenatal medicinal poisoning, and toxemia of pregnancy, factors since one's birth like infection, tumor, trauma, degenerative disease, and environmental factors such as psychosocial disadvantage and sensory deprivation(Min, 2006).

A visual perception is a function that recognize external environment through a visual organ. It includes not only seeing ability simply correctly but also translating ability of visual stimuli which accomplished with brain(Cha et al, 2004).

A visual perception disability is difficult to

form spatial located perception and spatial-related perception(Kwon, 2007) and to have recognition of objects and related perception between objects, so it's difficult to perform a task(Jung, 2007). One of a traditional treatment method of these visual perception disability is crafts in occupational therapy which is a work to make objects of crafts work by hand skill(Hong, 1995).

There are lots of treatment methods to improve function of visual perception in occupational therapy, but there is no scientific study using craft and art programmes yet. In this study, we try to show the necessity of crafts and arts comparing visual perception of autism with that of mental retardation using craft programmes.

II. Method

1. Duration and subjects

We performed this study in 3 different clinics which located in Gyengsangbukdo from 10, 2010 to 11, 2010. The study was subjected the children who diagnosis as developmental disability by medical specialist and whose parents understand the purpose of this study and agree participation of their children.

We applied a visual perception programme after sorting 10 autism and 10 mental retardation according to criteria. The subjects are made a diagnosis as autism and mental retardation by specialist. The children are 7 years old on average, have second grade of disability, and have below the average of intellectual level.

2. Method

A used craft programmes are consulted and produced by specialist who are applying crafts

as treatment or have experienced applying crafts. The items included potter, mobile art, wheat flour kneading, clay, corrugated cardboard work and color mix work. We applied the programmes twice a week during 4 weeks and used motor-free visual perception test-third edition(MVPT-3) to investigate the effect before and after treatments.

MVPT-3 is designed to purpose discrimination, diagnosis, and research, which is a test tool that has not include motor ability. It can apply both children and adults. It is also a standard tool that has high reliability and validity to estimate performance of visual perception.

MVPT-3 has total 65 items but performed from 1 to 40 items by 10 years old and from 14 to 65 items over 11. The more one has good visual perception the more it has high score. It is divided by VD(Visual Discrimination), FG(Figure Ground), VM(Visual Memory), VC (Visual Closure), and SR(Spatial Relationship) as sub items. Reliability of MVPT is .77~.88 (Bouska & Kwatny, 1983).

3. Data Analysis

We analyzed statistical data using SPSS version 12.0 K. We analysed general character using the descriptive statistics and carried out paired t-verification for value before and after applying the programmes, respectively.

We tested homogeneity of all subjects and performed t-verification on independent samples to know the difference of value after applying the programmes. We setted that significance probability is .05.

III. Result

1. Comparing standard score of autism with mental retardation before performance of the programmes

There was no significant difference between two groups comparing MVPT-3 standard score of autism with that of mental retardation before performance of crafts. The results were as follow(Table 1).

2. Comparing MVPT-3 standard score of autism before performance of the programmes with after

There was a significant difference comparing MVPT-3 standard score of autism before performance of the programmes with after. The results were as follow(Table 2).

Table 1. Comparing standard score of autism with mental retardation before performance of the programmes

	Autism	Mental retardation	t	P
	M ± SD	M ± SD		
Standard Score	18.0±3.59	20.00±4.00	-1.177	.255

Table 2. Comparing MVPT-3 standard score of autism before performance of the programmes with after (*p<.01)

	Before	After	t	P
	M ± SD	M ± SD		
Standard Score	18.00±3.59	19.70±3.43	-5.075*	.001

Table 3. Comparing MVPT-3 sub items of autism before performance of the programmes with after.

	Before	After	t	P
	M ± SD	M ± SD		
VD	3.90± .99	4.00± .94	-1.000	.343
FG	2.90± .88	3.20± .63	-1.964	.081
VM	3.20± .79	3.50± .85	-1.964	.081
VC	5.20±1.93	5.60±1.84	-2.449*	.037
SR	2.80± .63	3.40± .70	-2.714*	.024

VD: Visual Discrimination, FG: Figure Ground, VM: Visual Memory, VC: Visual Closure, SR: Spatial Relationship. (*p<.05)

Table 4. Comparing MVPT-3 standard score of mental retardations before performance of the programmes with after (*p<.01)

	Before	After	t	P
	M ± SD	M ± SD		
Standard Score	20.00±4.00	28.60±4.17	-7.090*	.000

Table 5. Comparing MVPT-3 sub items of mental retardations before performance of the programmes with after (*p<.01)

	Before	After	t	P
	M ± SD	M ± SD		
VD	4.50±1.51	6.50±1.08	-1.000*	.000
FG	3.30±1.16	5.20±1.14	-8.143*	.000
VM	3.50± .97	5.50±1.43	-5.477*	.000
VC	5.60±2.17	7.30±1.95	-5.075*	.001
SR	3.10± .74	5.20±1.40	-5.547*	.000

3. Comparing MVPT-3 sub items of autism before performance of the programmes with after

There was a significant difference VC and SR item no difference VD, FG, and VM

comparing MVPT-3 sub items of autism before performance of the programmes with after. The results were as follow(Table 3).

4. Comparing MVPT-3 standard score of mental retardations before performance of the programmes with after

There was a significant difference comparing MVPT-3 standard score of mental retardations before performance of the programmes with after. The results were as follow(Table 4).

5. Comparing MVPT-3 sub items of mental retardations before performance of the programmes with after

There was a significant difference in all sub-items comparing MVPT-3 subitems of mental retardations before performance of the programmes with after. The results were as follow (Table 5).

IV. Discussion

In this study, we tried to investigate and compare the effect of visual perceptual development when we applied craft programmes to autism and mental retardations.

As a result, there was a significant difference between the visual perceptual function using MVPT-3 before performance of craft programmes and after. We could know there was more significant effect on the function of mental retardations than that of autism.

The methods to improve visual perceptual function are Optometric Vision Therapy or Optometric Vision Training. There are sensory integration therapy, occupational therapy and

art therapy in conventional treatment(Kang, Lee & Lee, 2008; Kim & Lee, 2006; Hwang et al, 2011). Lee, Youn & Youn(2005) showed that Non-directive Art Therapy of autism had effect on discrimination and reading ability.

This study also showed craft programmes of autism had effect of visual perceptual function. However, in details, the programmes had no effect on VD, FG, and VM but effect on VC, SR. This means that the crafts of autism stimulate not small, detailed visual perceptual function field, but large, whole field. Jeong & Lee(2006) reported Handcraft and Painting had effect on improvement of visual perceptual function with mental retardations. Kim (2002) also showed that there was the synergistic effect on visual perception after applying art programmes to mental retardations. Lee(2003) reported that College program influenced on visual perceptual development with cerebral palsy. Kim & Lim(2005) showed that there was effect on visual perception after art therapy education with minimal brain dysfunction.

In this study, we could know that craft programmes influenced on visual perception of autism. It gives evidence about craft programmes, one part of occupational therapy, had effect on visual perception of autism. There are lots of paper about effect of developmental disability after applying treatment, while there are a few paper about effect of autism out of developmental disability after applying visual perceptual programmes. In this paper, crafts had effect on visual perceptual function of autism which is not as much as that of mental retardations.

V. Conclusion

We compared function of autism with that

of mental retardations after applying visual perception programmes and reached conclusions as follow.

First, craft programmes had effect on both autism and mental retardations.

Second, craft programmes had more effect on mental retardations.

Through above conclusions we could know that craft programmes influenced on visual perceptual development of autism and mental retardations. In conclusion, we can suggest craft programmes will be effective to promote visual perceptual development of autism and mental retardations.

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국문초록

목적 : 본 연구는 수예공작 프로그램을 이용하여 자폐아동과 지적장애아동의 시지각 효과를 비교함으로써 그 필요성을 밝히고자 한다.

연구방법 : 선정기준에 따라 자폐아동 10명, 지적장애 아동 10명을 선별한 후 시지각 프로그램을 적용하였다. 사용된 수예공작 프로그램은 수예공작을 치료로 적용하고 있거나 적용한 경험이 있는 전문가에 의해 의뢰되고 만들어졌다. 항목에 들어가는 것은 도예작업, 모빌공예작업, 밀가루 반죽작업, 지점토작업, 골판지공예작업, 칼라믹스작업이 선택되었다. 이 프로그램은 4주 동안 일주일에 두 번 적용하였고, 치료 전후의 효과를 확인하기 위해 MVPT-3를 사용하였다.

결과 : 첫째, 수예공작 프로그램이 자폐아동과 지적장애아동 모두 효과가 있었다. 둘째, 수예공작 프로그램 적용 후 각각을 비교하였을 때, 지적장애아동에게 더 높은 효과가 있었다.

결론 : 수예공작 프로그램이 자폐아동과 지적장애아동의 시지각 기능 발달에 영향을 미친다는 것을 알 수 있었다.

주제어 : 수예공작 프로그램, 자폐, 지적장애, 시지각