



앱기반 자극선호도평가 교육을 통한 발달장애아동 부모의 수행정확도 향상 효과*

신 주 원**

The Improvement of Performance Accuracy in Parents of Children with Developmental Disabilities through App-Based Stimulus Preference Assessment Education*

Shin, Juwon**

ABSTRACT

[Purpose] The aim of this study was to determine the effectiveness with which paired-stimulus(PS) and multiple-stimulus-without-replacement(MSWO) preference assessment performance accuracy, maintenance, and generalization of parents of children with developmental disabilities were improved using the stimulus preference assessment(SPA) education app. **[Method]** PS and MSWO education were delivered to the parents of three children with developmental disabilities using the SPA education app. The SPA education app facilitates a process of observing and evaluating PS and MSWO performance. The study's design entailed a multiple baseline across participants, and performance accuracy was determined at baseline and during the app-based SPA education, maintenance, and generalization phase. **[Results]** The parents of three children with developmental disabilities performed PS and MSWO with greater accuracy following the app-based SPA education. Moreover, it was confirmed that the parents' performance accuracy was maintained and generalized even after a certain period of time. **[Conclusion]** App-based SPA education is an effective strategy for improving the accuracy of with which parents of children with developmental disabilities can perform PS and MSWO and is effective in maintaining and generalizing performance accuracy.

Key Words : Stimulus Preference Assessment, Developmental Disability, Parents' Education, Parents' Training

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** 제 1저자, (주)꽃가람에스이디유 대표이사(aaron6246@hanmail.net)
Director, Kkokaram Sedu Inc.

Fuller(1949)

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(, , 2007; , 2020; , , 2019),
(, , 2020), (Radley et al., 2019), (,
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(, 2014).

(Vollmer & Iwata, 1991).

(Fisher et al., 1992).

(DeLeon et al., 2001;

Gottschalk, Libby, & Graff, 2000).

(Fisher et al., 1992; Leaf et al., 2016; Singer-Dudek, Oblak, & Greer, 2011).

(Cannella, O'Reilly, & Lancioni, 2005; Leaf et al., 2015).

1
(single stimulus), 2 (paired stimulus),
(multiple stimulus),
(multiple stimulus without replacement)
(in the moment reinforcer analysis)
(DeLeon & Iwata, 1996; Fisher et al., 1992; Leaf et al., 2015; Pace et al., 1985).

(Fisher et al., 1996; Matson et al., 1999).

(Hagopian, Long, & Rush, 2004).

(Hagopian et al., 2004),

(, 2014).

(Pence, ST Peter, & Tetreault, 2012).

(Bishop & Kenzer, 2012; Lavie & Sturmey, 2002; Roscoe & Fisher, 2009).

(Graff & Karsten, 2012; Hansard & Kazemi, 2018; Lipschultz et al., 2015; Rosale, Gongola, & Homiltas, 2015).

(Graff & Karsten, 2012; Hansard & Kazemi, 2018; Lipschultz et als., 2015; Rosales et al., 2015).

Alvero Austin(2004)

(observer effects)

(Field et al., 2015)

(Thomas, 2013)

(Alvero, Rost, & Austin 2008; Hansard & Kazemi, 2018).

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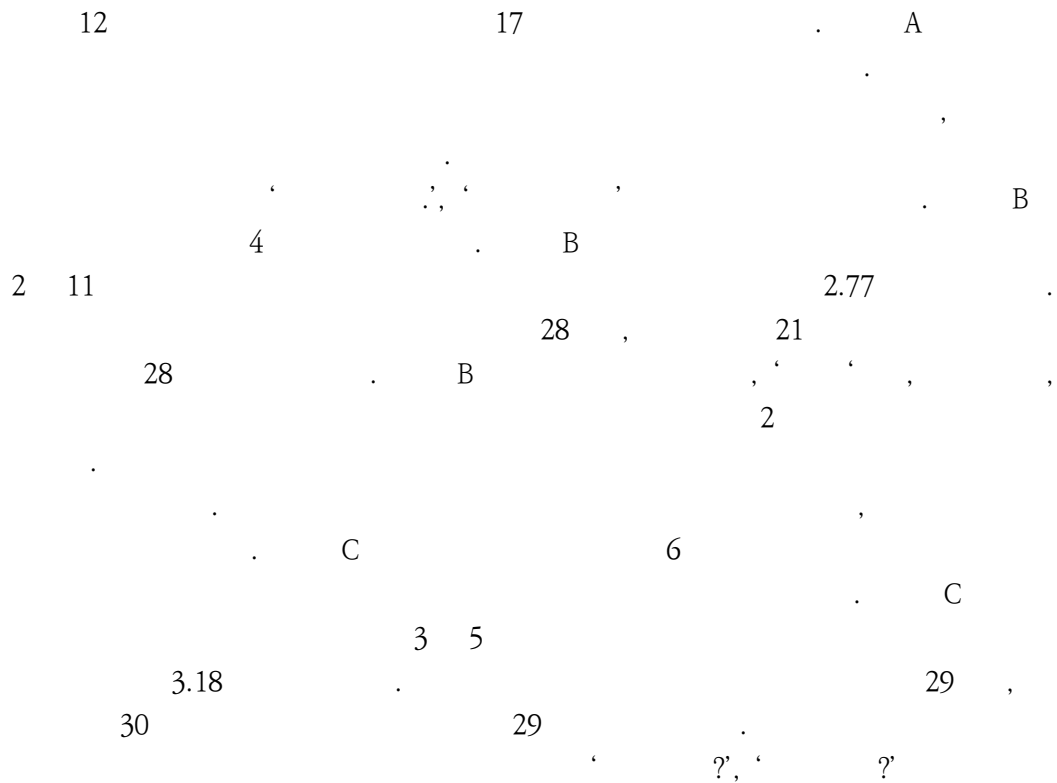
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<Table 1> Information on Participate Parents

	Parent A	Parent B	Parent C
Age	37	34	36
Gender	Female	Female	Female
Level of education	Bachelor	Bachelor	Master
Related major	No	No	No
Experience of SPA	No	No	No
Concept of reinforcer	Snack	Snack, Tool	Reward

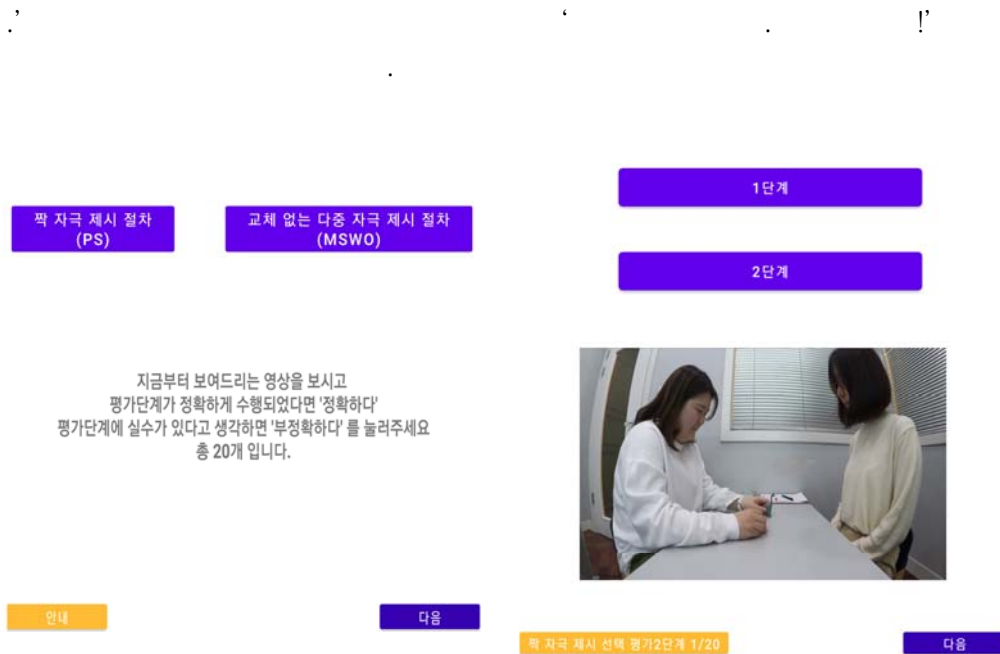
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Marano (2019)
(android studio)

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<Figure1> Screen Example of SPA Educational Application

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DeLeon Iwata(1996)

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Fisher (1992)

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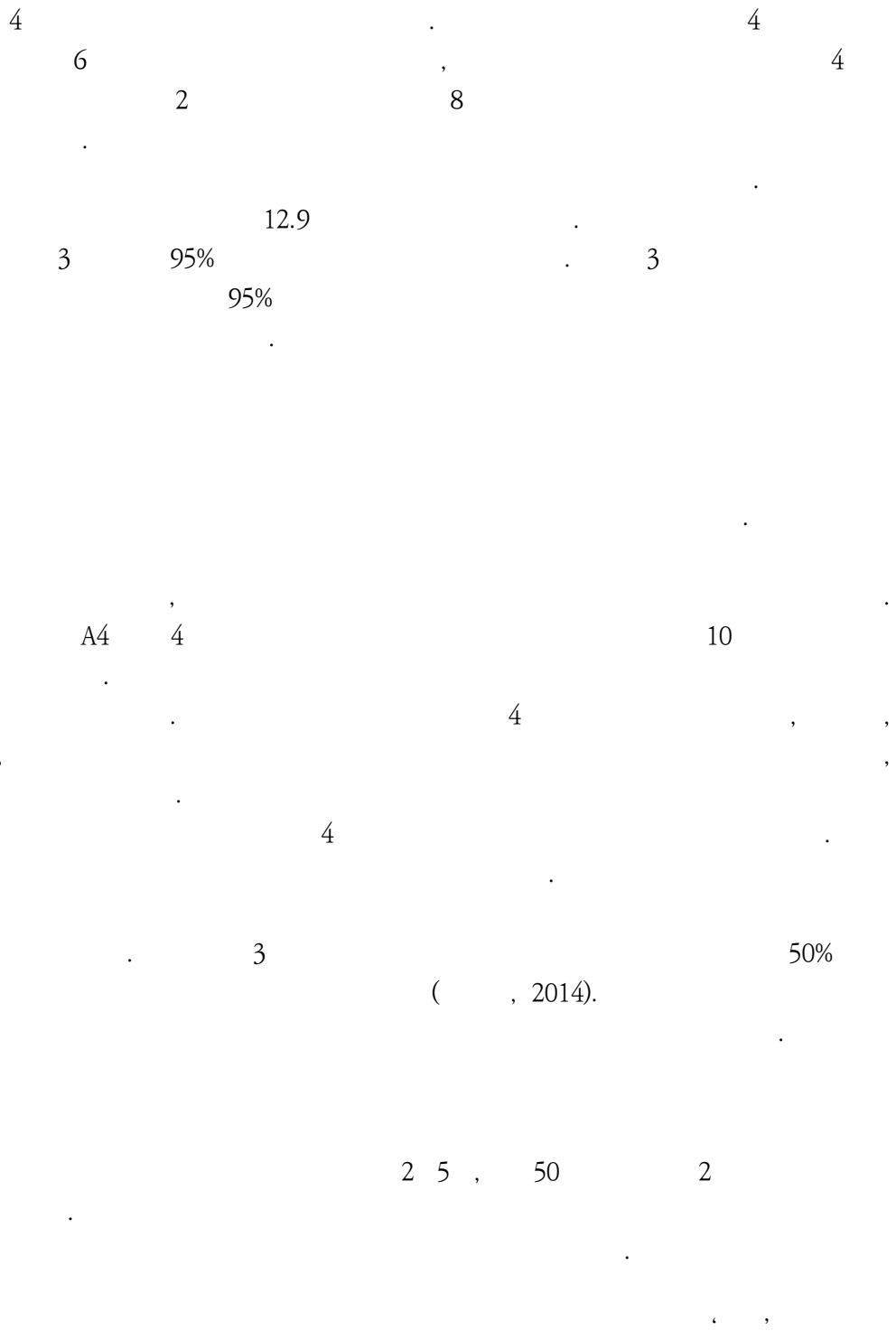
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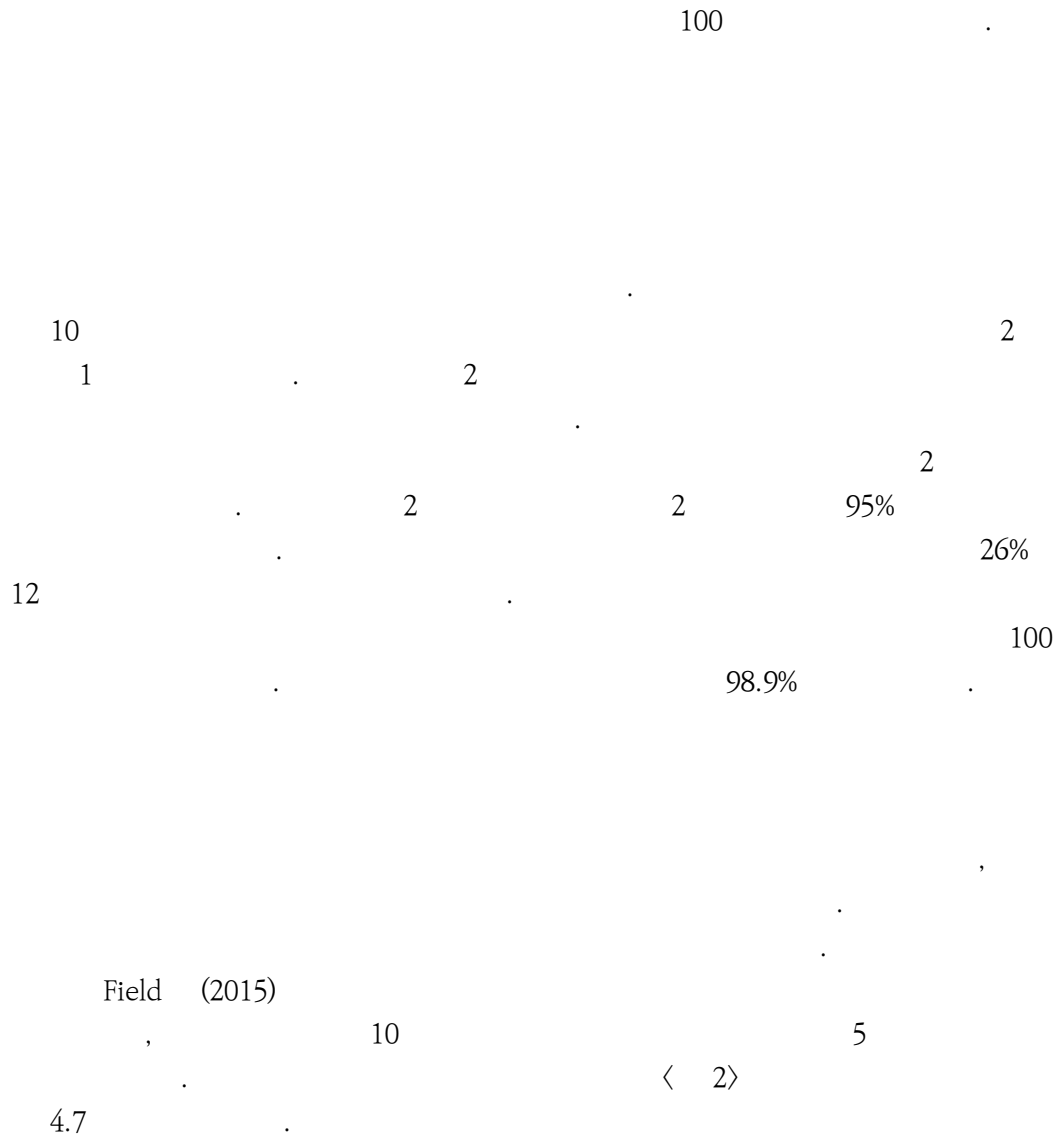
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(multiple baseline across participants design)

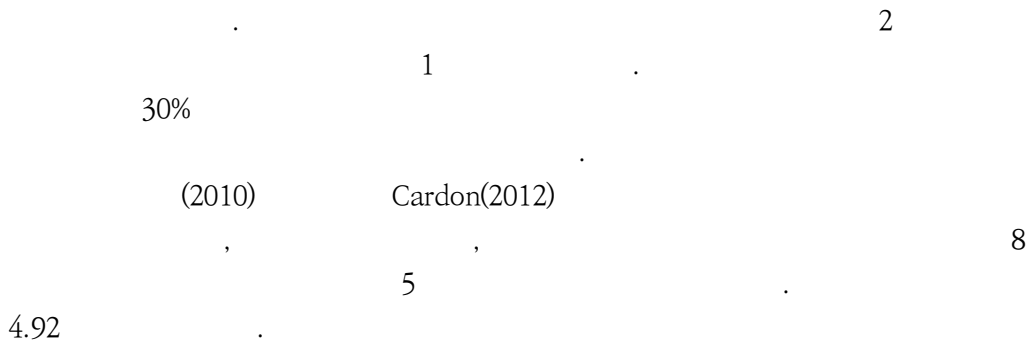




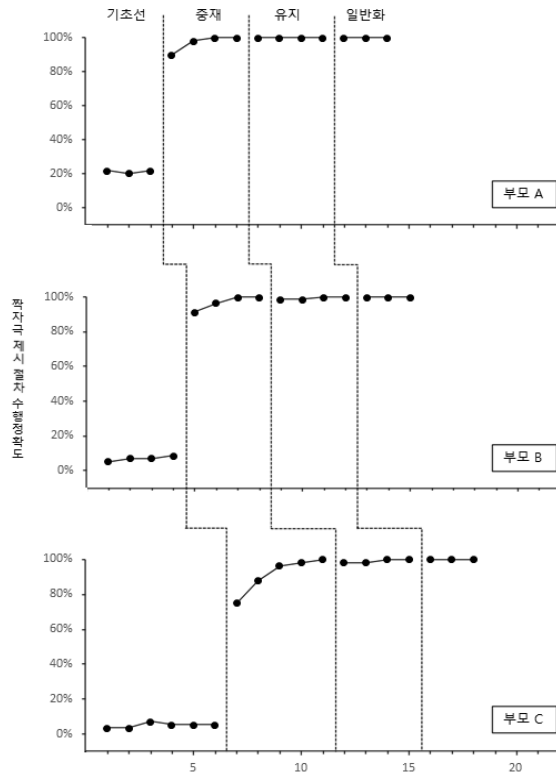


<Table 2> Questions and Average of Social Validity

Questions	Average
1. Appropriate training on SPA was received through this educational program.	4.33
2. The contents and procedures of this educational program were appropriate.	4.67
3. The duration of this educational program was appropriate.	4.67
4. SPA is a necessary element for raising and education children.	4.33
5. SPA training through the App is more efficient than direct training by experts.	4.67
6. Video depicting real-world performance helped to perform SPA.	4.67
7. This educational program helped to perform PS.	5
8. This educational program helped to perform MSWO.	5
9. After this educational program, it helped to identify children's preference stimuli and select reinforcer.	5
10. The educational program used in this study will be recommended to other parents.	4.67



5.0-21.4%) , 11.1%
95.2%(91.5-97.1%)
75.7-90.1%) B 90.1% 84.1%
92.4%(88-96.3%) 2
99.5%(99.1-100%)
100%
A < 2>
21.4%(20.3-22%)
A 90.1% 68.7%
A 98.3%
100%
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(7-10), 2 9.5 (5-13) 8
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2
100%, 100%, 100% A
100%
100% 100%, 100%,
100% A 100%
100%



<Figure 2> Performance Accuracy of PS

B 6.9%(5.2-8.6%)

B 84.4% 91.3%

B 97%(91.3-100%) B 90.1%

B 4

B 1

6.8 (6-8), 2

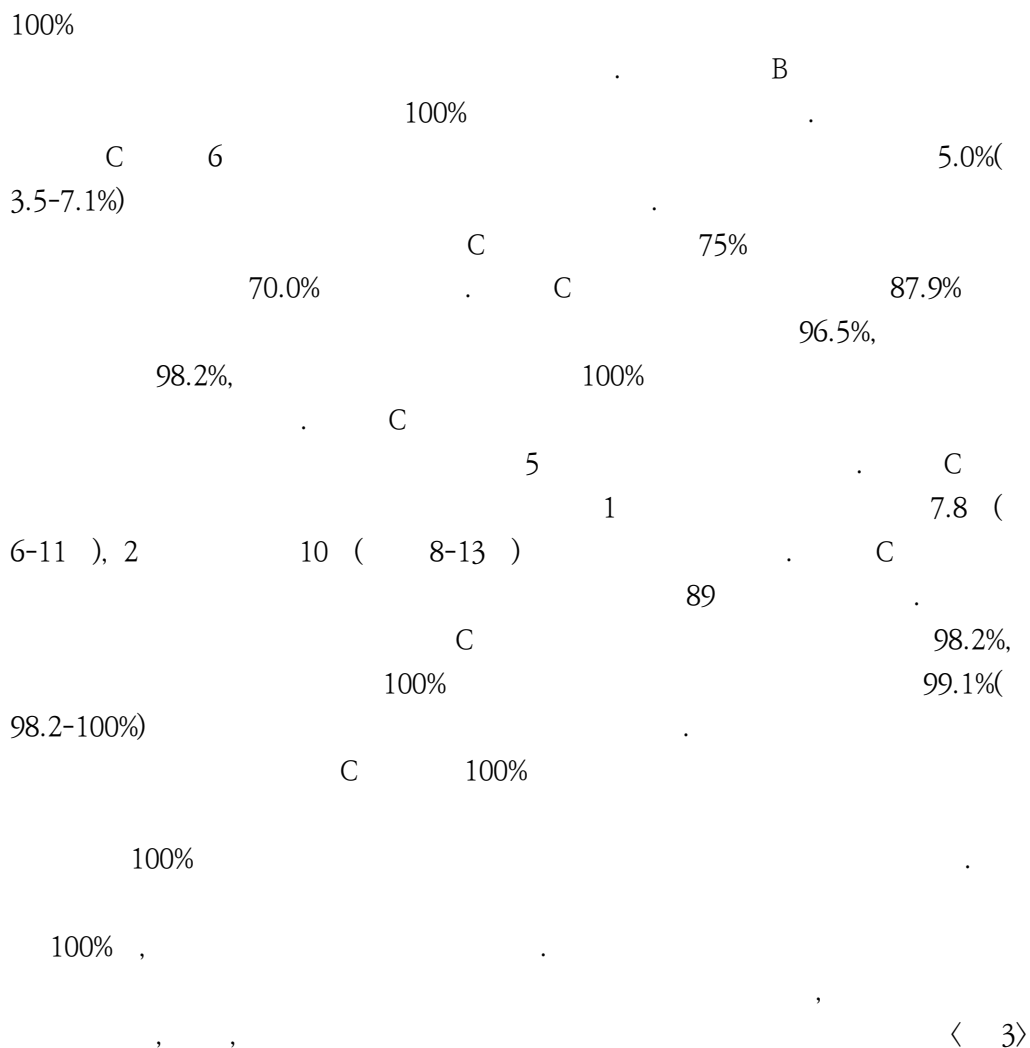
8.5 (7-10) B

61

B 98.8%

98.8%, 100%, 100%

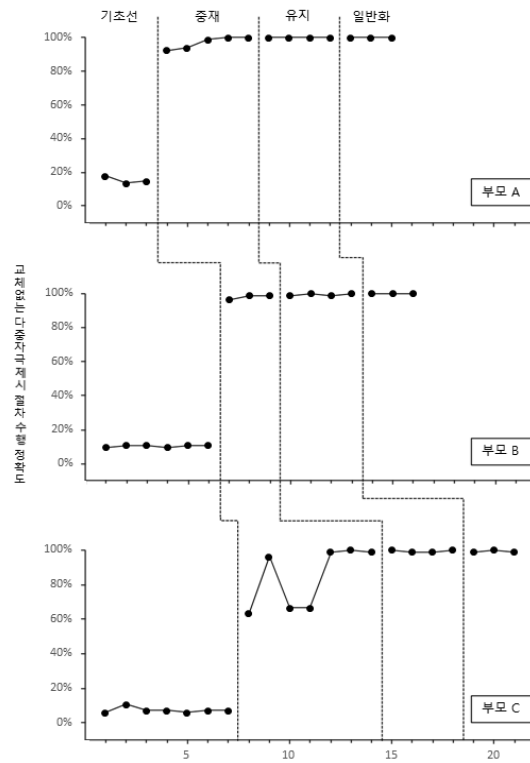
99.4%(98.8-100%) B



<Table 3> Average Accuracy of PS Assessment

	Baseline	App-Based SPA Education	Maintenance	Generalization
Parent A	21.4% (20.3-22.0)	97.1% (90.1-100)	100% (100)	100% (100)
Parent B	6.9% (5.2-8.6)	97% (91.3-100)	99.4% (98.8-100)	100% (100)
Parent C	5.0% (3.5-7.1)	91.5% (75.0-100)	99.1% (98.2-100)	100% (100)
Total	11.1%	95.2%	99.5%	100%

						11.0%(
7.2-15.3%)						
						93.1%(
84.3-97.9%)						
	B	87.5%			82.1%(77.1-87.5%)
	2				94.6%(91-96.7%)
					99.6%(99.4-100%)
					99.7%(99.2-100%)
	A		< 3>		15.3%(13.4-17.9%)
					A	
		77.2%			92.5%	
	A		4			
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(8-11)	2				21 (20-23)
	A					8.8
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		100%				
100%						



<Figure 3> Performance Accuracy of MSWO

B 10.6%(9.8-11%)

B 85.7% 96.3%

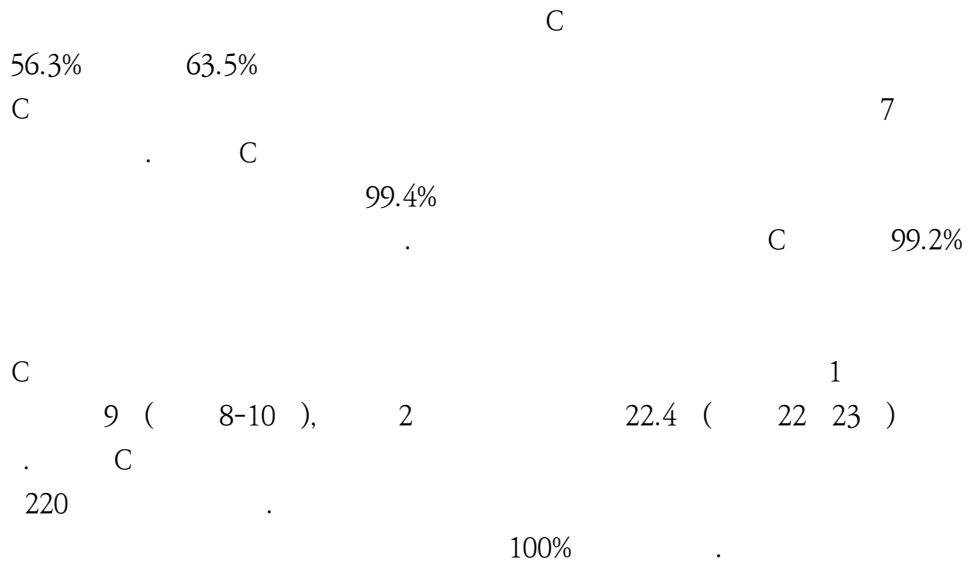
B 3 99.4%(98.8-100%)

B 100%

B 1 9 (8-10), 2 22.7 (22-24)

B 95

C 7.2%(5.8-10.7%)



<Table 4> Average Accuracy of MSWO Assessment

	Baseline	App-Based SPA Education	Maintenance	Generalization
Parent A	15.3% (13.4-17.9)	97.1% (92.5-100)	100% (100)	100% (100)
Parent B	10.6% (9.8-11.0)	97.9% (96.3-98.7)	99.4% (98.8-100)	100% (100)
Parent C	7.2% (5.8-10.7)	84.3% (63.5-100)	99.4% (98.8-100)	99.2% (98.8-100)
Total	11.0%	93.1%	99.6%	99.7%

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(Alvero & Asustin, 2004; Alvero et al., 2008; Field et al., 2015; Marano et al., 2019)

Higbee (2000)

(Lipschultz et al., 2015),

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Rosales et al., 2015). (Lipschultz et al., 2015;

7 B 3 A 5 , C

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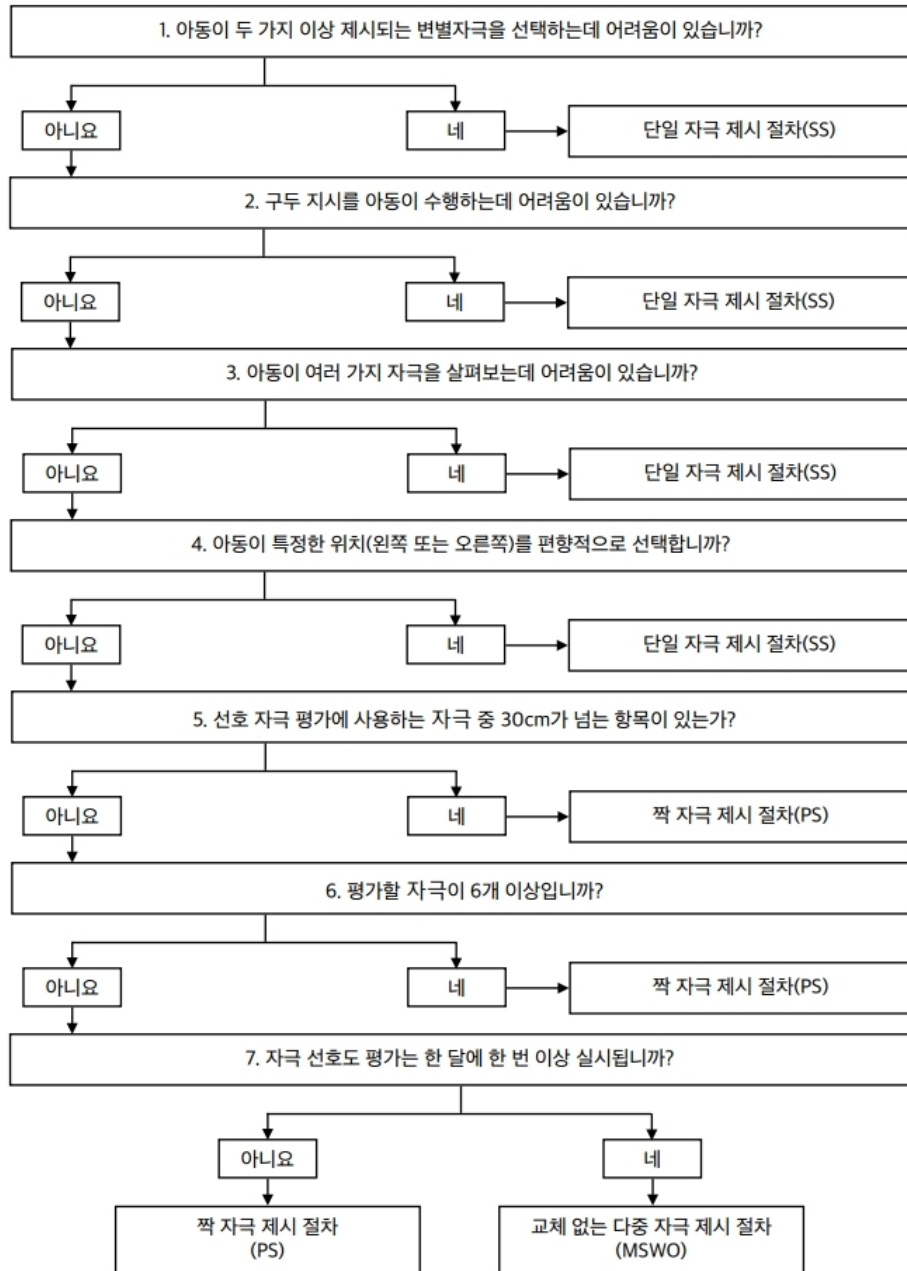
<국문 초록>

앱기반 자극선호도평가 교육을 통한 발달장애아동 부모의 수행정확도 향상 효과

신 주 원

[목적] 본 연구는 짝자극 제시 절차와 교체없는 다중자극 제시 절차의 수행을 관찰하고, 평가하는 과정으로 구성된 자극선호도 평가 교육 앱을 통해 발달장애아동의 부모들의 짝자극 제시 절차와 교체없는 다중자극 제시 절차 수행정확도 향상과 유지 및 일반화에 미치는 효과를 파악하고자 하였다. **[방법]** 발달장애아동의 부모 3명을 대상으로 자극선호도평가 앱을 사용하여 짝자극 제시절차와 교체없는 다중자극 제시 절차 교육을 진행하였다. 본 연구의 설계는 대상자간 중다 기초선 설계를 사용하였으며 기초선, 앱기반 자극선호도 평가 교육, 유지, 일반화 단계로 수행정확도를 파악하였다. **[결과]** 발달장애아동의 부모 3명은 앱기반 자극선호도 평가 교육 이후 짝자극 제시 절차와 교체없는 다중자극 제시 절차를 높은 정확도로 수행하였다. 또한 일정 시간이 지나도 부모들의 수행정확도는 유지되었으며 일반화되는 것이 확인되었다. **[결론]** 앱기반 자극선호도 평가 교육은 발달장애아동 부모의 짝자극 제시 절차와 교체없는 다중자극 제시 절차의 수행정확도를 향상시키는데 효과적인 부모교육 전략이며, 수행정확도가 유지되고 일반화 되는데 효과적이다.

주제어 : 자극선호도평가, 발달장애, 부모교육, 부모훈련



출처: Lipschultz 등(2015) 내용을 토대로 재구성함

짝자극 제시절차(PS) 평가기록지(4개 자극)

평가일	0월0일	평가자	홍길동	대상자	김철수
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평가 자극	
자극 1	슈퍼 윈즈
자극 2	돼지
자극 3	공룡 레고
자극 4	자동차

제시순서	선택 자극			
	좌측	우측		
#1	1	2		선택 안함
#2	3	1		선택 안함
#3	4	1		선택 안함
#4	2	3		선택 안함
#5	4	2		선택 안함
#6	4	3		선택 안함

자극 선택 총 횟수	
자극 1	0 회
자극 2	3 회
자극 3	2 회
자극 4	1 회

선호자극 순위	
1 순위	돼지
2 순위	공룡 레고
3 순위	자동차
4 순위	슈퍼 윈즈

교체없는 다중자극 제시절차(MSWO) 평가기록지(4개 자극)

평가일	0월0일	평가자	홍길동	대상자	김철수
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평가 자극	
자극 1	슈퍼 왕즈
자극 2	돼지
자극 3	공룡 레고
자극 4	자동차

자극 선택 순위 합계	
자극 1 선택	세 번째+세 번째=6
자극 2 선택	첫 번째+첫 번째=2
자극 3 선택	두 번째+두 번째=4
자극 4 선택	네 번째+네 번째=8

평가	선택 자극		
첫 번째 (위치)	돼지	선택 안함	선택한 자극 을 쓰고 선택 한 자극의 위 치에 동그라 미
	X (X) X X		
두 번째 (위치)	공룡 레고	선택 안함	
	(X) X X		
세 번째 (위치)	슈퍼 왕즈	선택 안함	
	(X) X		
네 번째 (위치)	자동차	선택 안함	
	(X)		

2	선택 자극		
첫 번째 (위치)	돼지	선택 안함	선택한 자극 을 쓰고 선택 한 자극의 위 치에 동그라 미
	X (X) X X		
두 번째 (위치)	공룡 레고	선택 안함	
	(X) X X		
세 번째 (위치)	슈퍼 왕즈	선택 안함	
	(X) X		
네 번째 (위치)	자동차	선택 안함	
	(X)		

자극 선택 순위 합계가
 낮은 순부터 1순위

선호자극 순위	
1 순위	돼지
2 순위	공룡 레고
3 순위	슈퍼 왕즈
4 순위	자동차

		1	2	3	4	5	6
(1) 평가 준비	자극선호도 평가에 사용할 4가지 자극을 선정하고 바구니에 넣어 준비하는가?						
	선정된 자극을 자극선호도 평가기록지에 1번부터 4번까지 번호를 매기는가?						
	평가에 사용되는 자극을 평가 대상자에게 접근할 기회를 제공하는가?						
(2) 자극 제시	제시되는 자극 간 15cm간격을 두고 수평으로 배열하여 적절하게 제시하는가?						
	평가기록지에 나타난 순서에 따라 두 가지 자극을 동시에 제시하는가?						
	평가 대상자와 약 30cm의 일정한 거리를 두고 자극을 제시하는가?						
(3) 평가 수행	두 가지 자극을 제시하고 평가 대상자에게 “하나 골라봐”와 같은 적절한 구두지시를 전달하는가?						
	평가 대상자가 선택한 자극에 대해 일정 시간동안(10초) 접근을 허용하는가?						
	제시된 자극 중 선택하지 않은 자극은 즉시 제거하는가?						
	평가 대상자가 자극에 접근한 후 적절한 구두지시를 통해 돌려받는가?						
	선택한 자극이 없는 경우 제시된 자극을 제거하고 동일한 위치에 다시 제시하는가?						
	다시 제시한 자극에 대한 선택이 없는 경우 다음 순서의 자극을 제시하는가?						
	두 가지 자극에 동시에 접근하는 경우 접근을 차단하며 이후 절차를 올바르게 수행하는가?						
선택자극에 대해 기록지에 올바르게 기록하는가?							
(4) 행동 관리	평가가 수행되는 동안 평가 대상자의 문제행동을 적절하게 무시하는가?						
(5) 결과 해석	평가결과를 올바르게 계산하고 순위를 매기는가?						
	(+)						
	(%)						

		#1				#2			
		1	2	3	4	1	2	3	4
(1) 평가 준비	자극선호도 평가에 사용할 4가지 자극을 선정하고 바구니에 넣어 준비하는가?								
	선정된 자극을 자극선호도 평가기록지에 1번부터 4번까지 번호를 매기는가?								
	평가에 사용되는 자극을 평가 대상자에게 접근할 기회를 제공하는가?								
(2) 자극 제시	자극이 제시되기 전 평가 대상자가 두 손을 무릎에 올릴 수 있도록 지시나 촉구를 전달하는가?								
	제시되는 자극 간 15cm간격을 두고 수평으로 배열하여 적절하게 제시하는가?								
	평가 대상자와 약 30cm의 일정한 거리를 두고 자극을 제시하는가?								
(3) 평가 수행	자극을 제시하기 전 칸막이를 적절하게 사용하는가?								
	네 가지 자극을 제시하고 평가 대상자에게 "하나 골라봐"와 같은 적절한 구두지시를 전달하는가?								
	평가 대상자가 선택한 자극에 대해 일정 시간동안(10초) 접근을 허용하는가?								
	평가 대상자가 자극에 접근한 후 적절한 구두지시를 통해 돌려받는가?								
	각 시도별 제시된 자극의 위치를 적절하게 이동시키는가?	/				/			
	선택한 자극이 없는 경우 제시된 자극을 제거하고 동일한 위치에 다시 제시하는가?								
	두 가지 자극에 동시에 접근하는 경우 접근을 차단하며 이후 절차를 올바르게 수행하는가?								
	선택자극에 대해 기록지에 올바르게 기록하는가?								
(4) 행동 관리	평가가 수행되는 동안 평가 대상자의 문제행동을 적절하게 무시하는가?								
(5) 결과 해석	평가결과를 올바르게 계산하고 순위를 매기는가?								
	(+)								
	(%)								
	(%)								