EFFECTING CHILDREN'S SOCIAL COGNITIONS AND BEHAVIOR THROUGH AN INTERVENTION PROGRAM [1]

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Abstrak *Sungguh nyata bahawa tidak ramai yang menafikan pendidikan sosial harus dibekalkan kepada kanak-kanak supaya mereka dapat memperoleh kemahiran dan tingkah laku sosial yang diingini. Namun, kebanyakan orang beranggapan bahawa kemahiran tersebut dipelajari secara semula jadi atau secara kebetulan sebagai akibat daripada proses kematangan dan perkembangan kanak-kanak. Peristiwa-peristiwa malang yang berlaku dalam masyarakat dewasa ini dan juga kajian terkini menunjukkan kita tidak boleh lagi membuat andaian sedemikian. Sebaliknya perlu diadakan satu program terancang yang mensasarkan kemahiran sosial sama ada sebagai satu strategi peningkatan atau pencegahan. Kajian ini telah dijalankan untuk menilai keberkesanan satu program intervensi yang mempunyai objektif memperkembangkan atau meningkatkan kognisi sosial kanak-kanak prasekolah, khususnya kemahiran pemikiran penyelesaian alternatif dan pemikiran akibat, yang dijangkakan akan membawa kepada peningkatan tingkah laku prososial. Program intervensi ialah pengubahsuaian program yang telah diciptakan oleh Shure (1992) yang dipanggil 'the Interpersonal Coginitive Problem Solving (ICPS) Program". Kajian ini menggunakan rekabentuk eksperimen kuasi dengan sampel kanak-kanak prasekolah seramai 142 orang.*

INTRODUCTION

It is increasingly obvious that the state of indiscipline is fast deteriorating amongst our youth. It is rare that a day passes by without some news report of some misdemeanor being committed by school-going children, and some even involving preschoolers. It can be argued that the root cause of most of these wrong doings stem from the lack of social consciousness on the part of the perpetrator. This shortcoming could be the result of a host of mediating factors that can be difficult to identify without an in-depth knowledge of the background and history of the individual concerned. One of these factors is of course the environment in which the child has been raised and also the accompanying values and social norms that he has been exposed to. These factors play a large part in determining how a child copes with his frustrations and reacts when he is confronted with problems and conflicts which are either personal or interpersonal in nature. For instance the six-year-old child who fatally shot his classmate in Michigan in the U.S. not too long ago, had probably thought that that was his only solution to his interpersonal conflict. A psychoanalyst and Director of the Lucy Daniels Center for Early Childhood intimated that the boy concerned, *"shows a failure, at a very significant level, to find other ways to deal with troubles, and this could come from how (he has) been treated, or how (he has) seen people being treated."* (New Sunday Times 2000) This explanation probably holds true in another tragedy in Malaysia which involved the stabbing of a seven-year-old girl by a Form One schoolmate over the former's refusal to give 20 sen to the latter.

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These incidents highlight that a potential source of antisocial acts stem from social cognitions which are lacking in certain aspects like cognitions which will inform the individual of potential consequences of such negative acts as well as of alternative actions which are not antisocial in nature but which would produce the desired outcome. These two cognitions are termed alternative solution thinking ability and consequential thinking ability in this study, and are the target cognitive skills of the intervention program under evaluation. It is believed that the acquisition and possession of these social cognitions could in turn have an impact on improved social behavior.

For purposes of this study, a number of key terms are operationally defined as follows:

Social cognitions can be defined as "the study of the ways that people think about their experiences of themselves and others" (Scott & Spencer, 1998). Social cognition tries to acknowledge the importance of both cognitive and social processes in our everyday understandings. Cognition is important because identifying, recognizing and assigning value to objects in our environment allows us to make the world meaningful.

Alternative solution thinking refers to a person's ability to generate as many varied solutions to an interpersonal problem as possible. Whilst *consequential thinking* is the ability to consider the possible outcomes of any social action undertaken by others or by his own self.

Prosocial behavior is voluntary behavior which aims at helping or benefiting another individual or group (Staub, 1979; Eisenberg, 1982). Amongst the types of behavior commonly described as prosocial are helping, sharing, altruism, generosity, cooperation and courtesy. In this study the focus is on lessening or eradicating behavior that is considered non-prosocial like nagging, demanding, aggressiveness, emotional, social withdrawal, impatience, reluctance to share, and lack of sociability.

AIMS OF THE STUDY

The main aims of this study are:

a. to evaluate the effectiveness of the adapted intervention program in enhancing the social cognitive skills of the experimental group of children, and
b. to discern if there are differences in the effects of the program across children of different gender, race, socioeconomic status, and years in preschool.
c. to examine the relative contribution or predictive power of the intervention program to the variance in the dependent variables.

METHOD

The study utilized a quasi-experimental design, where the sample was divided into two groups, the experimental group and the control group. Both groups were administered pretests which measured them on the dependent variables, then the intervention program was implemented only on the experimental group, and at the end of the intervention, both experimental and control groups were once again administered post tests which were essentially the same tests as the pretest. The researcher trained five preschool teachers to implement the intervention program over a period of four months. The researcher closely monitored the process of intervention and also held periodic meetings with the teachers to obtain feedback and to hold discussions so that there could be a sharing of experiences amongst the teachers especially those handling the experimental classes.

Sample

The sample for this study was made up of 141 preschool children aged between five to six years from 5 preschool centers in Penang. As mentioned above the children were randomly classified as either control or experimental groups. The preschools that were selected for the study had to fulfill a number of criteria, among which were that they used English as the medium of instruction; did not practice streaming; situated within a certain radius of the city of Georgetown, and had at least 2 classes of children in the target age group.

The Intervention Program

The intervention program that was adapted for use in this study is the Interpersonal Cognitive Problem-solving (ICPS) program created by Shure (1992). It consists of 83 formal lessons as well as suggestions to integrate the core principles into the daily classroom routine and the curriculum as a whole. Each of the 83 lessons contains a stated purpose, a list of suggested materials, and a teacher script. The teacher script is a flexible guideline, explaining the steps in conducting the lesson. The lessons are grouped into two major categories: pre-problem solving skills and problem solving skills. The ICPS words and other pre-problem solving concepts set the stage for the problem solving skills which are associated with alternative solutions, consequences, and solution-consequence pairs.

Instrument

The instruments used in this study to measure the dependent variables were made up of two measures to assess the social cognitive skills, and one measure to assess the social behavior of the children. The social cognitive measures were the Preschool Interpersonal Problem Solving Test (PIPS) specifically to assess the alternative solution thinking ability of children, and the What Happens Next Game (WHNG) to assess the consequential thinking ability of children. The social behavior instrument was the Hahnemann Preschool Behavior Rating Scale (HPBS). These instruments were chosen because they were designed specially to measure the effectiveness of the intervention program as far as the target skills were concerned.

Analysis

Data obtained in this study were analysed using the SPSS 9.01 package for Windows. The statistics used included descriptive statistics like frequencies, means and standard deviations; comparison of mean scores using t-tests and ANOVA; as well as regression analysis.

RESULTS AND DISCUSSION

The effectiveness of the intervention program

The effectiveness of the program was assessed by comparing the outcomes of the dependent variables between the experimental and control groups. The dependent variables are the two social cognitive skills and the social behavior of the children in the sample.

The first variable is the alternative solution thinking ability measured by the PIPS test. This test yielded three sub-scores namely PIPS1 or the total number of alternative solutions generated; PIPS2 or the ratio of relevant solutions generated; and PIPS3 or the number of non-aggressive solutions. Using t-test to compare the mean gain scores of experimental and control groups in these three sub-scores, it was found that the experimental group had scored significantly higher than the control groups in two out of three sub-scores. The experimental group had enhanced their ability to generate more relevant solutions as well as more non-aggressive solutions compared to the control group.

Table 1: Comparison of mean gain scores in PIPS between experimental and control groups (T-test; independent samples)

Dependent Variable	Group	No. of cases	Mean	S.D.	Mean Diff.	t-value	df	Signif.
PIPS1	Control	61	.6393	1.539	-.5138	-1.80	130	.074
	Experimental	71	1.1831	1.877				
PIPS2	Control	61	.0574	.160	-.1148	-3.04	116	.003*
	Experimental	71	.1722	.268				
PIPS3	Control	61	.3934	.822	-.3812	-2.21	126	.027*
	Experimental	71	.7746	1.149				

* p = < 0.05

The second variable is the consequential thinking ability measured by the WHNG test. This test yielded four sub-scores namely, WHNG1 or the total number of consequences generated; WHNG2 or the ratio of relevant consequences generated; WHNG3 or the ratio of relevant consequences to peer-related problems; and WHNG4 or the ratio of relevant consequences to adult-related problems.

Table 2: Comparison of mean gain scores in WHNG between experimental and control groups (T-test; independent samples)

Dependent Variable	Group	No. of cases	Mean	S.D.	Mean Diff.	t-value	df	Signif.
WHNG1	Control	62	.0645	1.084	-.2543	-1.39	129	.166
	Experimental	69	.3188	1.007				
WHNG2	Control	57	.0740	.239	-.1164	-3.17	93	.002*
	Experimental	69	.1904	.155				
WHNG3	Control	57	.0694	.294	-.1046	-2.32	124	.022*
	Experimental	69	.1739	.211				
WHNG4	Control	55	.0773	.214	-.1342	-2.93	116	.004*
	Experimental	65	.2114	.286				

* p = < 0.05

Using t-test to again compare the mean gain scores of experimental and control groups in the four sub-scores, significant differences were found in three out of four sub-scores. The experimental group had improved significantly in their ability to generate more relevant consequences overall, as well as in generating more relevant consequences for both peer-related and adult-related problems.

The third variable is the social behavior measured by the HPBS. This scale yielded four sub-dimensions namely, impatience; emotionality; aggressiveness, and sociability. The t-test statistic revealed that the experimental group had improved significantly in three dimensions compared to the control groups. The experimental group was now less emotional, less aggressive and more sociable.

Table 3: Comparison of mean gain scores in HPBS between experimental and control groups (T-test; independent samples)

Dependent Variable	Group	No. of cases	Mean	S.D.	Mean Diff.	t-value	df	Signif.
HPBS	Control	60	-.8833	2.351	2.5233	-5.88	133	.000*
	Exp'tal	75	1.6400	2.571				
Impatience	Control	58	-.1552	.854	0.0902	-.67	133	.505
	Exp'tal	77	-.0649	.713				
Emotionality	Control	60	-.3500	1.191	0.6487	-2.86	135	.04*
	Exp'tal	77	0.2987	1.405				
Aggressive	Control	55	-.3509	.896	1.0911	-7.18	132	.000*
	Exp'tal	77	.7403	.849				
Sociability	Control	60	-.1500	.954	0.5916	-3.44	135	.001*
	Exp'tal	77	.4416	1.032				

* $p = < 0.05$

All the three tests which measured the dependent variables show that the experimental group had experienced gains in the target social cognitions as well as their social behavior. This result confirms that the intervention program has been effective and successful in enhancing the children's alternative solution thinking skills as well as their consequential thinking skills. The increment in both these social cognitive skills probably had an effect on their social behavior and hence, this in turn also showed a marked improvement.

This result replicates those findings obtained in similar studies conducted in the United States utilizing the intervention program in its original form (Aberson 1987; Altman 1989; Callahan 1992; Weddle & Williams 1993). Besides the ICPS, the majority of other interventions which also focus on children's social cognitions report success in bringing about positive changes in the target group (Arbuthnot & Gordon 1986; Bennett 1995; Lane 1997; Weikart & Schweinhart 1987). Thus far approaches that target children's cognitions seem to be showing results, which are more encouraging than those approaches which merely focus on behavior.

There are several factors that seem to have aided in the effectiveness of the intervention program. In the discussions with the teachers, one aspect that emerged as an important factor had to do with the teachers' personal philosophy and values regarding early childhood education. The implementation of the program according to its aims and true objectives was facilitated when there was a match between teachers' personal philosophy and values and that of the principles and basic values promoted in the intervention program.

The ICPS program promoted the philosophy and values that saw the child as an individual who could think independently and ought to be encouraged to solve problems independently through a rational process which emphasized consideration for the feelings of others. The teacher no longer plays the dominant role in the classroom, but instead places her trust in the ability of the child to make his/her own decision and solve problems independently, albeit with the guidance of the teacher. A few teachers at first felt a little uncomfortable with this change of role, but they were able to adapt themselves and came to accept this paradigm shift soon after.

Another factor which apparently greatly assisted the success of the program was the training that was conducted by the researcher for the teachers involved in the study. These training sessions provided "hands-on" experience as well as enabled the teachers to understand and internalize the core principles, concepts and methods used in the program more effectively. The teachers also benefited from the discussions with the other teachers implementing the program in their respective preschools since they felt a sense of camaraderie and moral support. This support network is essential because the teacher who is implementing what can be considered an innovation, something not implemented before needs a lot of support so as not to feel alone or lacking in confidence.

The relationship between independent variables and the effects of the intervention program.

The table below summarises the results of the analysis conducted to examine the relationship if any between the independent variables of gender, race, socio-economic status, years in preschool as well as preschool center and the effects of the intervention program.

Generally the study seems to indicate that there is no significant relationship between the effects of the intervention program and the independent variables studied, except socio-economic status. This finding is almost similar to those studies conducted in the United States which used the intervention program in its original form. All children who had followed the intervention program showed a positive change in the target social cognitive skills. This positive change was experienced by both boys and girls; by children from different ethnic groups; and by children from low and middle socio-economic groups. These studies did not report data for children from high socio-economic background nor for children with different duration of preschool experience.

Table 4 : Interaction between independent variables and the effects of the intervention program

Independent Variable	Test/ Dimension	Significant Interaction
Gender	PIPS	No
	WHNG	No
	HPBS	No
Race	PIPS	No
	WHNG	No
	HPBS	No
Socio-economic status	PIPS	Yes
	WHNG	Yes
	HPBS	No
Years in preschool	PIPS	No
	WHNG	No
	HPBS	No
Preschool centre	PIPS	No
	WHNG	No
		Yes

Thus, we can conclude that generally the intervention program benefits almost all groups of children. Most children who follow the program will experience a significant change in their social cognitions, and a handful might not experience any positive change or even might show a deterioration in their social cognitions. In such negative outcomes, factors which are more influential such as home values and practices might have obstructed any good which the program might have tried to bring about. For example, preschool teachers have found that some children from high socio-economic status families are aggressive and dislike sharing because either they are the only child in the family, or because they have been raised in an environment that does not place much emphasis on consideration for the feelings of others (Anna Christina 1999).

The contribution or predictive power of the intervention program to the variance in the dependent variables.

Stepwise regression was run to examine the relative contribution or the predictive power of the main independent variables, especially that of the intervention program on the gain scores in the dependent variables. The table below shows the regression statistics obtained for the all the three measures, PIPS, WHNG and HPBS. Generally, it can be observed that only a few dependent variables consistently show any contribution to the gain scores.

The variable "group" which means being in either the experimental group or the control group, which in turn means the effect of having followed the intervention program, emerges as a significant predictor in two out of three sub-scores of the preschool interpersonal problem-solving test (PIPS). This means that the children in the experimental group had scored higher in their alternative solution total score and relevancy score because they had undergone the intervention program.

Table 5 : Stepwise Regression with sub-scores of PIPS as dependent variables

Dependent variable	Step	Independent variable	R	R^2	Increment in R^2
PIPS1	1	Father's occupation	0.39916	0.15932	0.15932
	2	**Group**	0.55040	0.30294	0.14362
	3	Mother's occupation	0.62374	0.38905	0.08611
PIPS2	1	**Group**	0.25725	0.06618	0.06618
	2	Years in preschool	0.33171	0.11003	0.04385
PIPS3	1	Father's occupation	0.23585	0.055&1	0.05561
	2	Years in Preschool	0.31408	0.09865	0.04304

In the What Happens Next Game (WHNG) test, the intervention program contributed significantly in three out of four sub-scores. This means that children who had undergone the intervention program were able to generate more consequences generally, more relevant consequences, as well as more relevant consequences to adult-related problems.

Table 6 : Stepwise Regression with sub-scores of WHNG as dependent variables

Dependent variable	Step	Independent variable	R	R^2	Increment in R^2
WHNG1	1	Years in preschool	0.32799	0.10758	0.10758
	2	Mother's occupation	0.39758	0.15807	0.05049
	3	**Group**	0.44534	0.19833	0.04026
WHNG2	1	**Group**	0.50679	0.25683	0.25683
	2	Father's occupation	0.55885	0.31231	0.05548
	3	Mother's occupation	0.62225	0.38720	0.07489
WHNG3	1	Years in preschool	0.20393	0.04159	0.04159
WHNG4	1	Years in preschool	0.25125	0.06814	0.06814
	2	**Group**	0.31165	0.09713	0.03899

In the scores obtained for the Hahnemann Preschool Behavior Scale (HPBS), the only variable that contributes significantly is the intervention program. In the sub-dimensions, it is also the sole predictor except for emotionality where race has also contributed a little to the variance in the gain score. This also means therefore that having gone through the intervention program has resulted in improved behavior among the experimental children.

Overall, the independent variable that emerges as the strongest contributor to the variance obtained in the dependent variables is the **group** variable, or in other words the intervention program. This variable is one of the predictors in five sub-scores and it is the sole predictor in the gain score for HPBS. This therefore suggests that the intervention program has contributed significantly to the gain scores in both the target social cognitive skills as well as in the children's social behavior. Besides the intervention program, years in preschool is the second strongest predictor of children's gain scores (emerging in five out of seven sub-scores in the social cognitive measures but not in the social behavior measure), followed by father's occupation and mother's occupation (both these variables are indicators of children's socio-economic status).

Table 7 : Stepwise Regression with HPBS and its sub-scores as dependent variables

Dependent variable	Step	Independent variable	R	R^2	Increment in R^2
HPBS	1	Group	0.46659	0.21770	0.21770
emotionality	1	**Group**	0.38688	0.14968	0.14968
	2	Race	0.42461	0.18030	0.03062
aggressiveness	1	**Group**	0.35091	0.28632	0.28632
sociability	1	**Group**	0.40298	0.16240	0.06814

Hence, we can conclude that the intervention program has high predictive power in the enhancement of social behavior, and average predictive power in the enhancement of alternative solution thinking and consequential thinking. This outcome is sufficient for us to have confidence in the intervention program as a viable approach for training children in interpersonal problem solving.

CONCLUSION

Based on the above findings and discussion, we can conclude that the ICPS is a feasible and effective program for use in training preschoolers to enhance or develop their social cognitive skills, specifically the ability to think of alternative solutions and consequences in relation to interpersonal problems. From this study it is also apparent that the children who have enhanced these social cognitions have also showed improvement in their social behavior. The feasibility and viability of the program is due to several factors. One is because its content is in itself easy to implement, relevant and stimulating to the children. The lessons are appropriate for the local context as its core concepts and principles are universal in nature involving values like consideration for others, fair play, patience etc. The social skills which are taught are those acceptable in any society which desires that its members live together in harmony with mutual respect and tolerance for each other.

REFERENCES

Aberson, B. 1987. I can problem solve (icps): A cognitive training program for kindergarten children. Unpublished manuscript, Dade County Public Schools.

Altman, B.E. 1989. Mental health in the schools: Year end report. Unpublished manuscript.

Anna Christina Abdullah. 1999. Teachers' beliefs and perceptions about preschoolers' social competencies, Paper presented at the MERA-ERA Inaugural Conference. Malacca, 1 3 December.

Arbuthnot, J. & Gordon, D.A. 1986. Behavioral and cognitive effects of a moral reasoning development intervention for high-risk behavior-disordered adolescents. *Journal of Consulting Clinical Psychology.* 54: 208 216.

Bennett, D.M. 1995. The effectiveness of a short-term interpersonal problem-solving program for aggressive preschool children with low acceptance among peers. Ph.D. Memorial University of Newfoundland.

Callahan, C. 1992. 1991-1992 evaluation report for the Mental Health Schools Project. Mental Health Association in Illinois.

Eisenberg, N. (ed.) 1982. *The development of prosocial behavior.* New York: Academic Press.

Lane, G.P. 1997. Social-cognitive perspective taking in student mediators. Ph.D. Dissertation. Arizona State University.

Scott, P. & Spencer, C. 1998. *Psychology : A Contemporary Introduction*. Massachusetts: Blackwell Publishers.

Shure, M.B. 1992. *I Can Problem Solve: An Interpersonal Cognitive Problem Solving Program (Kindergarten/Primary Grades).* Champaign, IL: Research Press.

Staub, E. 1979. *Positive social behavior and morality : Socialization and development: Vol. 2.* New York: Academic Press.

Weddle, K.D. & Williams, F. 1993. Implementing and assessing the effectiveness of the Interpersonal Cognitive Problem-Solving (ICPS) curriculum in four experimental and four control classrooms. Unpublished manuscript, Memphis State University.

Weikart, D.P. & Schweinhart, L.J. 1987. The High/Scope Cognitively Oriented Curriculum in early education. In J.L. Roopnarine & J.E. Johnson (eds.). *Approaches to early childhood education*, pp. 253 268. Columbus, OH: Charles E. Merrill Co.