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ABSTRACT

The first in a series of studies, requested by the Reading Recovery Advisory Council of South Carolina, an exploratory study identified and measured the systemic effects of Reading Recovery on the districts, schools, programs, teachers, and students in South Carolina who are touched by it. Subjects, 701 first-grade teachers, second-grade teachers, administrators, Reading Recovery teachers, Reading Recovery teacher leaders, and Reading Recovery teachers in training, completed a questionnaire. Results support the assertion that changes in the literacy level of children who participate in Reading Recovery influence not only the child and the teacher, but provide a positive school-wide impact by inspiring the development of new instructional goals, enhancing the professional development of all teachers, reducing the need for special education, and improving overall school achievement in a cost-effective manner. In addition, the Reading Recovery program produced positive teacher change because it was a school-based model in which teachers learn while they were teaching children and interacting with peers and mentors who were also working in the program. (Contains 12 references; appendixes contain data and a path model.) (RS)

Systemic Effects of the South Carolina Reading Recovery Program: Part I

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Send email comments or questions concerning this paper to dgail@clemson.edu.

Introduction

This is the first in a series of research studies requested by the Reading Recovery Advisory Council of South Carolina. This study takes an exploratory approach to identifying and measuring the systemic effects of Reading Recovery on the districts, schools, programs, teachers, and students who are touched by it.

Method

Participants

By 1996, 4,607 first grade students were served by 563 South Carolina Reading Recovery teachers since the program's inception in 1988. This study targets the Reading Recovery teachers, classroom teachers, and administrators whose students were participants in the program.

Instrumentation

In the Spring of 1996, a research team consisting an educational psychologist, a Southeast Reading Recovery trainer and a cadre of five Reading Recovery teacher leaders designed the framework of the survey used here to determine the impact of the program in the state. The resulting survey produced 48 items on a Likert scale (1= Strongly Disagree, 5 = Strongly Agree), eight of which were dropped due to evidence of ambiguity. The respondents' summated scores for the forty items were confirmed with principal components to define nine unidimensional scales (District Support, Cost Effectiveness, Staff Development, Special Ed, At Risk, Program Fit, Teacher Change, Child Attitude Change, and Child Reading Change). Indicator items defined by scale, with corresponding Cronbach's alpha coefficients ranging from .52 to .88 are included in Appendix A.

Data Collection

In the Summer of 1996, Reading Recovery (RR) teachers and teacher leaders volunteered to receive the survey by mail and agreed to distribute them to RR teachers, administrators and classroom teachers in their districts. A total of 271 first grade teachers, 182 second grade teachers, 62 administrators, 294 RR teachers, 14 RR teacher leaders, 7 RR teachers in training, and 13 of undeclared status returned completed surveys (total N = 843). With pairwise deletion of missing data due to non-response on one or more items, a conservative estimate of 701 was used as a sample size in conducting tests of significance.

Data Analysis

The Model. The path model shown in Appendix B was analyzed using the Linear Structural Relations computer program LISREL, Version 7.1 (Jorescog & Sorbom, 1989). Causal connections were hypothesized among six scales serving as observed independent variables (District Support, Cost Effectiveness, Staff Development, Special Ed, At Risk, and Program Fit) and three scales serving as observed dependent variables (Teacher Change, Child Attitude Change, and Child Reading Change). The LISREL input matrix comprised of pairwise correlations between all nine scales is found in Appendix C. Estimates of direct, indirect, and total effects are found in Appendices D.1 and D.2.

Interpretation

Cost Effectiveness was perceived as the strongest determinant of Program Fit (the degree to which the RR program fits within the framework of everyday school activities). The attitude that Reading Recovery fits within daily school scheduling is causally related to the decision to support state and district funding for RR. In

serving individual students, Reading Recovery was considered to be at least as cost effective as placement in special education or retention. These results support the contention that decreased referrals to special education, remedial programs and decreased retention rates make a fully implemented Reading Recovery extremely cost effective, and that one cannot afford *not* to have the program in school (Dyer & Binkney, 1995; Lyons & Beaver, 1995).

District Support, the degree of commitment by district personnel to fund, staff, and promote Reading Recovery has a direct effect on teachers' perception of program fit.

Staff Development, which measures feelings about the impact of Reading Recovery on district practices in training and evaluating teachers, is weakly but significantly related to Program Fit. This weak relationship may be due to the notion that rigorous teacher evaluation standards in Reading Recovery training are perceived by classroom teachers as threatening, and cause them to react adversely. Fullan (1993) described behaviors relevant to this phenomenon as the "implementation dip", which occurs when teachers who are asked to change often do not do so without resistance and sometimes revert back to more familiar methods of teaching.

Staff Development directly influences respondents' attitudes (Special Ed) that RR contributes to decreased referrals to special education, changes expectations for all remedial programs, and contributes to cooperation between RR and classroom teachers when dealing with challenging students. Staff Development also indirectly affects Special Ed through its influence on Program Fit.

Reading Recovery, or any program no matter how effective it is, cannot compensate for poor classroom teaching. One of the successful outcomes of the Reading Recovery training model is that many of the underlying principles and theories of the program can be used in providing effective staff development programs for classroom teachers. Fountas and Pinnell (1996) stress the importance

of "good first teaching" which can be supported by the training of classroom teachers within the framework of Reading Recovery theory and practice.

Program Fit directly influences Special Ed, and At Risk (increased parental school involvement due to RR, decreased retention rates at the primary level, RR team support in decision-making about at-risk students, and teacher sensitivity to students' lack of experience in learning situations).

Teacher Change, specified as one of the three outcome variables in the model, is directly influenced by Program Fit, At Risk, and Special Ed. Teacher Change is defined as a teacher's improvement in kid-watching skills, independence in problem-solving, theory change in how children learn to read, and feeling of comfort in seeking peer advice. Teacher Change is causally related to the outcome variable, Child Attitude Change, defined as improvement in self-concept and attitude about school, confidence in reading ability, and the degree to which the child acts as a positive role model for others and takes responsibility for his own learning. Its non-significant direct relationship to Child Reading Change is most likely due to moderately large and significant mean differences between the attitudes of classroom teachers and RR teachers on this variable, t (670) = 14.24, $p < .01$. A significant positive indirect effect of Teacher Change on Child Reading Change appears when the mediating variable of Child Attitude Change is taken into account.

Child Reading Change, the most important outcome variable, is defined as the ability of the successfully discontinued RR child to internalize independent reading strategies, problem-solve independently, show active involvement in selecting his own reading materials, write and generally function independently in the classroom, and continue to read at or above the class average. The strong direct causal relationship between Child Attitude Change and Child Reading Change suggests that only children who are able to maintain high levels of internal motivation are likely to demonstrate sustained levels of reading achievement following discontinuation. These results supports Kohn's notion that a child's level of internal

motivation is affected by his feelings of self (1994). A child's internal motivation may be at risk if he is placed into a classroom where the teacher does not view him as "recovered".

Conclusions

The results of this study support Clay's assertion that changes in the literacy level of children who participate in Reading Recovery influence not only the child and the teacher, but provide a positive school-wide impact by inspiring the development of new instructional goals, enhancing the professional development of all teachers, reducing the need for special education, and improving overall school achievement in a cost-effective manner (Shanahan & Barr, 1995).

In addition, the Reading Recovery Program produces positive teacher change because it is a school-based model in which teachers learn while they are teaching children and interacting with peers and mentors who are also working in the program (Smith-Burke & Jaggar, 1994). Reading Recovery's staff development model is based on innovative, yet common sense concepts for maximal teacher learning.

Our model reflects the practice observed in South Carolina's Reading Recovery programs where school management teams provide a means of communication about program effectiveness. The teams, comprised of a building administrator, trained Reading Recovery teacher, classroom teachers, special education personnel, and other supportive staff members, make decisions about effective implementation of Reading Recovery and disseminate information about the program's outcomes in their schools.

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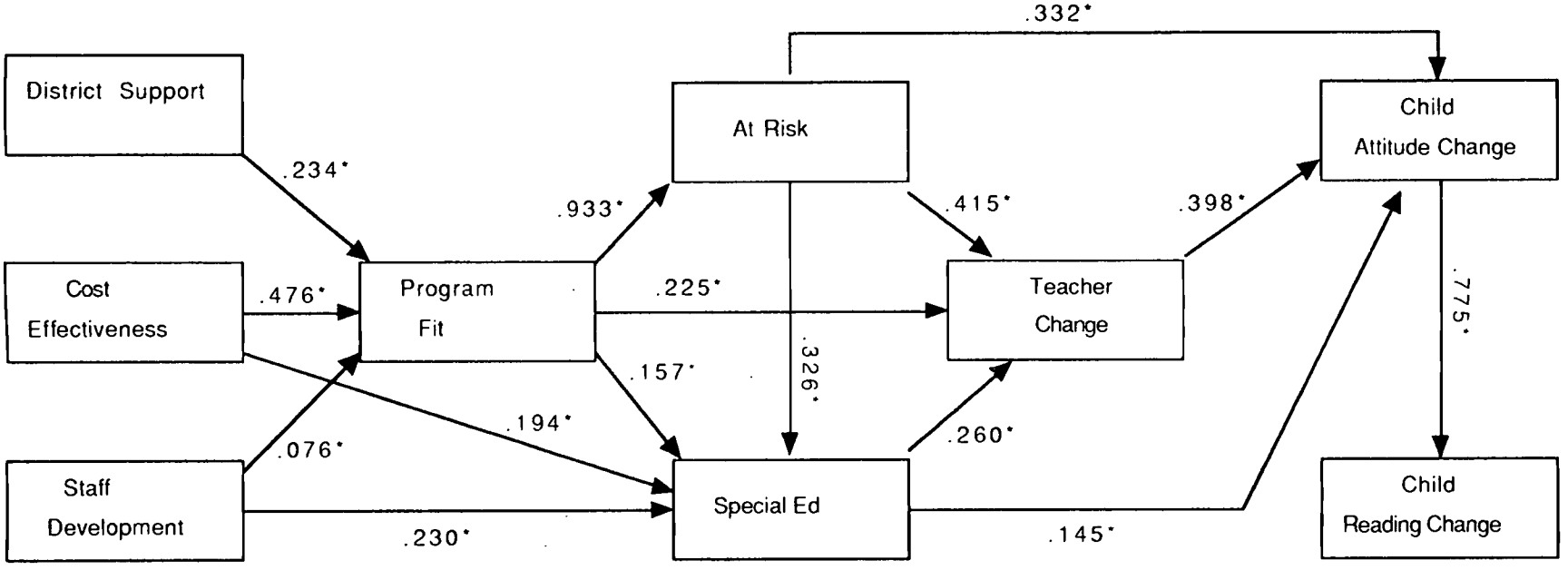
Appendix A

Scale	alpha	Items
District Support	.78	The policy makers in our district are well informed about the Reading Recovery program.
		In our district, Reading Recovery teaching spaces are a priority in planning new schools and new building additions.
		Reading Recovery is used in reports and speeches to highlight the good things happening in our district.
		Our district has made a long term commitment to supporting Reading Recovery.
		Our district would fund staff development courses based on Reading Recovery theory and strategies.
		We receive adequate support from district level administrators for the Reading Recovery program.
Cost Effectiveness	.69	For the individual student, Reading Recovery is as cost effective as retention.
		For the individual student, Reading Recovery is as cost effective as special education placement.
		I support the idea of augmenting state funds for the Reading Recovery program with non-categorical district funds.
Staff Development	.53	The Reading Recovery teacher training model has changed the way our district views staff development.
		Reading Recovery teacher evaluation practices have changed the way we view teacher evaluation in our district. (These practices include school visits, continuing contact sessions, and teaching model lessons.)
Special Ed	.52	Special education referrals have decreased since our district implemented Reading Recovery.
		Expectations for all remedial programs have changed as a result of Reading Recovery implementation in our district.
		Classroom teachers consult Reading Recovery teachers when dealing with challenging students.
At Risk	.65	Parents of at-risk children are more involved in the school if their child has been in Reading Recovery.
		Primary teachers recommend retention less often for students who participate in Reading Recovery.
		A school Reading Recovery team can help teachers make important decisions about at-risk students.
		Involvement in Reading Recovery enables classroom teachers to recognize that lack of experience rather than lack of aptitude alone places children at risk.
Program Fit	.64	Teacher duties do not take priority over scheduled Reading Recovery lessons.
		Reading Recovery is not as intrusive as other pullout programs.
		Special programs in our school do not take priority over Reading Recovery lessons.
		Reading Recovery is compatible with our Act 135 School Renewal Plan.
		Reading Recovery teachers and classroom teachers cooperate on scheduling to allow children to receive RR lessons.

Scale	alpha	Items
Teacher Change	.78	A teacher's kid-watching skills improve as a result of involvement with Reading Recovery
		Reading Recovery training enables teachers to become independent problem solvers
		Involvement in Reading Recovery enables classroom teachers to change their theory of how all children learn to read.
		As a result of Reading Recovery involvement, a teacher becomes more comfortable with seeking peer advice.
Child Attitude Change	.88	A Reading Recovery child's improvement in attitude and self-concept continues for several years.
		I have observed an improvement in a child's attitude about school as a result of successfully completing the Reading Recovery program.
		A successful Reading Recovery child has more self-confidence about his or her reading ability.
		Children who successfully discontinue from Reading Recovery show an improvement in self-concept.
		Children who successfully complete the Reading Recovery program become positive role models for other students.
		A successfully discontinued Reading Recovery child takes more responsibility for his or her own learning.
Child Reading Change	.88	Children who successfully complete the Reading Recovery program internalize independent reading strategies
		Reading Recovery students who successfully complete the program are more willing to problem-solve independently.
		Reading Recovery children are more actively involved in choosing their own reading materials.
		Reading Recovery children's average or above average classroom performance continues for several years.
		A successful Reading Recovery child's independence in classroom functioning continues for several years.
		Reading Recovery children continue to read at the class average after successfully completing the Reading Recovery program.
		Children who successfully complete the Reading Recovery program are more willing to write independently in classroom activities.

Appendix B

Path Model of Systemic Effects of the South Carolina Reading Recovery Program



* Significant at alpha = .05, (n=701)
GFI=.92; AGFI=.88

Appendix C
Input Correlation Matrix For LISREL Analysis

	CHRDCHG	CHATTCHG	DISTSUPP	COSTEFF	STAFFDEV	PROGFIT	ATRISK	SPED
CHATTCHG	0.89							
DISTSUPP	0.30	0.28						
COSTEFF	0.61	0.63	0.23					
STAFFDEV	0.32	0.26	0.45	0.24				
PROGFIT	0.58	0.60	0.40	0.53	0.30			
ATRISK	0.68	0.69	0.35	0.54	0.34	0.55		
SPED	0.60	0.59	0.36	0.51	0.43	0.51	0.60	
TCHRCHG	0.65	0.72	0.30	0.59	0.32	0.58	0.69	0.62

CHRDCHG = Child Reading Change
CHATTCHTG = Child Attitude Change
DISTSUPP = District Support
COSTEFF = Cost Effectiveness
STAFFDEV = Staff Development
PROGFIT = Program Fit
ATRISK = At Risk
SPED = Special Ed

Appendix D.1

Tables 1-3. Direct, Indirect, and Total Effects & Standard Errors of District Support, Cost Effectiveness, and Staff Development on Reading Recovery Outcome Variables

	Table 1. District Support					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
Program Fit	.234*	.028			.234*	.028
At Risk			.218*	.026	.218*	.026
Special Ed			.108*	.015	.108*	.015
Teacher Change	-.036	.026	.171*	.021	.135*	.032
Child Attitude Change			.142*	.021	.142*	.021
Child Reading Change			.139*	.022	.139*	.022

	Table 2. Cost Effectiveness					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
Program Fit	.476*	.028			.476*	.028
At Risk			.444*	.028	.444*	.028
Special Ed	.194*	.033	.219*	.021	.414*	.029
Teacher Change			.339*	.024	.399*	.024
Child Attitude Change			.366*	.023	.366*	.023
Child Reading Change			.367*	.023	.367*	.023

	Table 3. Staff Development					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
Program Fit	.076*	.032			.076*	.032
At Risk	.062	.037	.071*	.031	.133*	.032
Special Ed	.230*	.028	.055*	.014	.285*	.030
Teacher Change	.032	.026	.147*	.023	.179*	.033
Child Attitude Change			.157*	.024	.157*	.024
Child Reading Change			.160*	.025	.160*	.025

Appendix D.2

Tables 4-7. Direct, Indirect, and Total Effects & Standard Errors of Program Fit, At Risk, Special Ed and Teacher Change on Reading Recovery Outcome Variables.

	Program Fit					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
At Risk	.933*	.061			.933*	.061
Special Ed	.157*	.034	.304*	.037	.461*	.042
Teacher Change	.225*	.029	.507*	.042	.733*	.043
Child Attitude Change			.669*	.044	.699*	.044
Child Reading Change			.665*	.044	.655*	.044

	At Risk					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
Special Ed	.326*	.033			.326*	.033
Teacher Change	.415*	.031	.085	.013	.500*	.030
Child Attitude Change	.332*	.032	.246*	.121	.579*	.028
Child Reading Change	.022	.051	.535*	.047	.557*	.029

	Special Ed					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
Teacher Change	.260*	.031			.260*	.031
Child Attitude Change	.145*	.030	.104*	.015	.249*	.031
Child Reading Change	.029	.037	.233*	.036	.262*	.031

	Teacher Change					
	Direct		Indirect		Total	
	Effect	SE	Effect	SE	Effect	SE
Child Attitude Change	.398*	.033			.398*	.033
Child Reading Change	.155	.095	.309*	.028	.463*	.096

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