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ABSTRACT

This study investigated factors that contribute to the mathematics and reading achievement of students in Italy. The Walburg Productivity Model (H. Walburg, 1984) served as a framework to analyze the interconnections among family processes, family structure, and socioeconomic status. Campbell's Differential Socialization Paradigm (J. Campbell, 1994) was used to analyze gender differences. The sample population was 155 fourth grade students who live in and around one Italian city. The results of the regression analysis showed that reading achievement played a major role in influencing the students' mathematics achievement. Parental support had direct positive effects on reading achievement. An abundance of educational resources had direct negative effects on females' mathematics self-concepts. Membership in two-parent families and belonging to higher socioeconomic status families was found to have a bearing on females' achievement. (Contains 2 figures, 2 tables, and 12 references.) (Author/SLD)

Parental Processes and Self-Concepts Effect the Academic Achievement of Italian Students

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This study investigated factors that contribute to math and reading achievement of students in Italy. The Walberg Productivity Model (Walberg, 1984) served as a framework to analyze the interconnections among family processes, family structure, and socioeconomic status. Campbell's Differential Socialization Paradigm (1994) was used to analyze gender differences. The sample population was 155 fourth grade students who live in or around Campobasso, Molise, Italy. The results of the regression analysis showed that reading achievement played a major role in influencing the students' math achievement. Parental support had direct positive effects on reading achievement. An abundance of educational resources had direct negative effects on females' math self-concepts. Membership in two-parent families and from higher SES families was found to have a bearing on females' achievement.

The New York City public schools are in a turmoil. Many of the school students are not reading at grade level. To help to remediate this problem the schools have purchased reading programs and have reassigned teachers to these failing schools. Many teachers have left the profession after only two months at these difficult schools. The Board of Education has not addressed the necessity of the cooperation from the home. Based on research, we know that the education of the child begins in the home. The impact that the parents have upon their children is paramount to what the teachers can achieve. Therefore, it has been a recent practice in New York City schools to form a partnership with the parents for the benefit of the children. Is this the best means of increasing student achievement? Perhaps, this practice if productive to Americanized students but what about the new immigrant students and their parents? Hence, it is the responsibility of the educators of these pre-service teachers to provide instruction in the most up to date research and literature to accomplish this goal. Many of our New York City school students are new immigrants to this country. Therefore, it is the intention of this study to investigate the factors that promote success in students of a European country. This study is the first component of a continuing study. The same survey will be administered to New York City school children, of Italian origin, during the 2001-2002 school year. Next year, a comparison study will be completed. The results will add to the body of knowledge that we already possess to help our teachers and parents in promoting success in the children's academics.

Theoretical Framework

The home environment has been shown to have significant direct and indirect effects on the level of student learning (Bloom, 1986: Keith, Reimers, Fehrmann, Potterbaum, & Aubrey, 1986, Verna & Campbell, 1999). Iverson and Walberg (1982) found that the psychosocial environment and intellectual stimulation in the home most clearly influence academic ability and achievement. The home environment consists of sets of interacting influences such as SES, family structure, and the application of numerous family processes. Excessive amount of pressure exerted on children by parents were found to be negatively correlated with math achievement, whereas support and high levels of exposure to intellectual resources were found to have direct positive effects (Campbell, 1994). An important factor for the Italian family is to support school learning, motivate the children to study, and to provide experiences to create positive self images (Santelli Beccegato, & Elia, 1998).

Why is there a noticeable difference between the males and females with respect to academic achievement? Socialization patterns created within a family setting mold the children's attitudes, behaviors, and perceptions of gender roles. In turn, these gender roles unknowingly influence a child's academic self-concepts. A strong relationship exists between specific academic self-concepts and grades (Byrne, 1986).

The Structure of Italian Schools

The structure of the Italian public schools was established in the first quarter of the 20th century. The infant school is populated by children whose parents work. The Italian Infant School run by the Municipality of Reggio Emilia is highly acclaimed and widely publicized. The elementary school, ages 6-11; the lower secondary, 11-14; and the upper secondary, 14-19 comprise the remaining divisions of the structure. As of 1962, schooling became compulsory to the age of fourteen. During this year the Scuola Media Unica was created as a means of integrating general education students, technical education students, and vocational training students. However, separation remained especially with the vocational students who received their on the job training administered by the regions. In the late 1990s, schools have gained the responsibility of curriculum development. Included in the curriculum is the Catholic religion. (Luzzatto, 2000).

Teacher pre-service training requirements have increased in the 1990 law. Those wishing to be instructors in the infant and elementary schools must have university qualifications, and postgraduate pedagogical specialization for secondary school teachers. Presently, on the Parliament floor there are issues concerning the compulsory age, unifying the elementary and the lower secondary schools, and setting a five-year secondary school with completion at the age of 18. There is an official proposal to have English as a compulsory language in all schools (Luzzatto, 2000).

Objectives

The focus of this study is to examine the home factors and demographic factors that exist in Italy and how they affect student achievement.

The objectives of the study are:

1. To determine the demographic factors that are related to student achievement.
2. To determine which family processes are the most influential in promoting academic achievement?
3. How do socioeconomic factors affect achievement of students?
4. To what extent do male and female subject matter self-concepts affect achievement?
5. To what extent does parental involvement in school activities affect the child's achievement?

Design and Procedure

Subjects

This study was conducted with Italian 4th grade public school students from the province of Campobasso in Molise, Italy. Two schools in Campobasso were selected. There were 155 Italian students: 81 males and 74 females. Ninety-two percent of the students come from two-parent homes. One hundred forty nine students were born in Italy, one was born in Asia, one in Europe, and four did not respond. Ninety-two percent of the mothers and ninety-four percent of the fathers were born in Italy. One hundred forty two students live in Campobasso. Thirteen students live in the surrounding towns and attend the city's schools.

The students in the Campobasso elementary school attend school five days a week from 8:25 A.M to 1:05 P.M. and one day a week they stay to 4:04 P.M. There are 30 hours of compulsory lessons a week in reading and linguistics, the sciences including mathematics, social studies, and Catholic religion. The afternoon activities are optional which includes computer literacy, sports, physical activities, library, music, and art. The city has a public library and a museum but few students make use of these facilities. The students will periodically frequent a children's theatre.

At the beginning of the school year the teachers plan the curriculum for the year. Every week they meet to refine the coming week's lessons. There are scheduled meetings between the teachers and parents every two months. In the case of necessity they may meet again with the two-month span if the parent requests a consultation. The principal of the school conducts a

faculty meeting once a month and individually with her teachers when the opportunity arises. An individual educational plan (IEP) is written for students with learning difficulties. The psychologist, social worker, the teaching assistant, and the parents of the child conduct periodic reviews of these students.

Operational Definitions

Mathematics Achievement: This is the student's report card grade in mathematics.
Reading Achievement: This is the student's report card grade in reading.

Instrumentation and Methods

Each student was be asked to answer the Inventory of Parental Influence (IPI) (Campbell, 1994). The IPI instrument was designed to identify a child's perception of selected family processes. The first two family processes (Part I) are measured by factor scales that have been developed from Likert statements (Parental Pressure, Parental Psychological Support). The respondents express their degree of agreement or disagreement with each statement (a. strongly disagree; b. disagree; c. uncertain; d. agree; e. strongly agree). To understand operationally the meaning of these scales, it is useful to examine some of the items. For example, a high score is achieved for the pressure scale (17 items) if the student agrees or strongly agrees with such statements as: "When it comes to school, my parents expect the impossible," or "My parents do not feel I'm doing my best in school." These items suggest a demanding parent who exerts pressure to retain high levels of performance. For the support scale (17 items), the student agrees or strongly agrees with the statements that suggest a psychologically supportive atmosphere at home: "My parents are satisfied if I do my best." "My parents are proud of me."

Part II of the IPI contains the next three factor scales (18 items) (Parental Help, Parental Press for Intellectual Development (resources), Parental Monitoring/Time Management). The child specifies how often each practice occurred (a. never; b. rarely; c. sometimes; d. usually; e. always). The press for intellectual development measures how often the parent encourages the child to read books, stresses the value of the local library, and educational TV. The help scale measures how often the parent goes over mistakes from a test and assists with schoolwork or preparing for a test. The emphasis here is on the parents giving the time that is needed to help the child complete schoolwork. The monitoring scale determines if the family sets rules on the kind of TV watched, insists on setting aside time for reading, and requires the child to do his homework at the same time each night. Families with high scores for these two processes offer a great deal of help and have distinct rules about homework, studying, TV, and reading.

Part III is a Self Aptitude Attribute Scale (SaaS) (18 items) relating to mathematics and reading. The respondents express their degree of agreement or disagreement with each statement (a. strongly disagree; b. disagree; c. uncertain; d. agree; e. strongly agree). A high score is achieved on the math self-concept scale if the student agrees or strongly agrees with such statements as, "I have always likes math," or "I look forward to math lessons." A high score is achieved for the reading self-concept is the student agrees or strongly agrees with such statements as, "Reading is important to me," or I feel sure of myself in reading."

Part IV and part V (14 items) assesses the parent's involvement with his child's school. The respondents express their degree of agreement or disagreement with each statement (a. never; b. 1-2 times; c. sometimes; d. every week; e. every day). A high score is achieved if the student responds with weekly or every day to such statements as, "Discuss grades on tests and schoolwork with my parent (s)," or "My parent works as a volunteer at school."

Part VI is a background demographic questionnaire. Information included gender, one- or two-parent homes, place of birth of the student and the parents, and the parents' occupational and educational background. This data were collected from the students. Their teachers supplied report card grades for the Italian students.

A professional educator translated the survey questionnaire into Italian. It was then back translated into English to assure for accuracy.

Validity/Reliability

The instruments used in this study were developed by a series of test administrations with international samples and with samples of different American ethnic groups. For each sample separate Principal Component analyses were calculated to isolate the factors. The final scales involve a synthesis of items which loaded on the different national and international analyses. These testings were done to construct instruments that could be used with cross-cultural samples. For this study, another set of Principal Component analyses was calculated to verify the factor structure for these students. Alpha reliability coefficients were calculated for each of the different scales: Students' perception of parental pressure ($\alpha = .54$), parental psychological support ($\alpha = .77$), parental help and monitoring ($\alpha = .78$), parental press for intellectual development ($\alpha = .79$), students' math self-concept ($\alpha = .86$), reading self-concept ($\alpha = .78$), parental involvement ($\alpha = .73$), and parent-teacher communication ($\alpha = .49$).

Information regarding the parents' occupational and educational background was collected from the child. The Nam-Powers Scale (Nam & Powers, 1983) was used to convert the parents' occupational information into an interval scale. The parents' educational data, along with their occupational status comprise the composite variable of socioeconomic status. Family structure was defined as one- or two-parent homes.

Procedure

A complete packet of instruments was sent to the director of the Italian elementary schools. An introductory letter explaining the purpose, the importance, the significance of the study, and the procedures for their participation was included.

Information pertaining to the students' academic achievement was obtained from the teachers. Grades were supplied as words not numbers or letters. Therefore, upon the information from the director, the ratings were converted to a letter grade and then a number. The ratings are as follows: ottimo (A=5), distinto (B+=4), buono (B=3), sufficiente (C=2), and insufficiente (D=1).

Results

Table 1 lists both means and standard deviations for measures used in these analyses. Significant differences between males and females were assessed by conducting t-tests. This procedure revealed two significant gender differences. Males had more books in the home than females, and males had higher reading self-concepts than their counterparts.

Correlations

Pearson Product Correlations were conducted. Math achievement, reading achievement, the number of books in the home, and psychological support were all negatively correlated with both math self-concepts and reading self-concepts. This indicates that the more books at the students' disposal the lower their self-concepts. However, the number of books in the home, reading achievement, psychological support, and monitoring were positively correlated with the parents' involvement factor. The more books that the parents provided the more involved they were with the child's education. Perceived parental pressure was positively correlated with press for intellectual development.

Regression Analysis

The factor scales that were derived were used in multiple regression analysis to isolate the factors relating to achievement in school. Separate regression analyses were conducted for males and females using SPSS with math achievement and reading achievement as the dependent variables. For these analyses, the order of variables and factors in the model was determined by three criteria: time, logic, and previous research (Campbell, 1996). Variables or

factors were entered into the analysis and factor loadings were produced. Based on theoretical considerations, a second-order factor was created by combining monitoring and help. The new factor was called monitoring. To summarize the results of these regression analyses, the significant findings are represented in the path models (Figure 1, males; Figure 2, females). The solid black lines indicate significant positive results with the heavier black lines indicating the most important factors in the results. The dotted lines indicate significant negative results.

The results of the males' analysis showed that most important factor affecting math achievement is reading achievement. The finding was also true for the females' analysis. Parental psychological support proved to be significant for the males' reading achievement as well as the females' reading achievement. For the females' math achievement, math self-concepts proved negative significance. Two-parent families had a significant effect on the females' reading achievement. High SES families gave more support which indirectly helps reading achievement.

Discussion

Results of this study showed that being in a two-parent family was more important for females' academic achievement than males' academic achievement. The females need to know that their parents offer family stability and security. Perceived psychological support was important for both genders. Similar results have been noted by other research studies (Verna & Campbell, 1999). High levels of support produced positive results for the males' reading achievement. Yet, it decreased their math self-concepts. Socioeconomic status proved to have significant influence indirectly on achievement for the females. High SES had direct positive effects on support, which in turn influenced reading achievement. Yet, high reading achievement and an abundance of books decreased the females' math self-concepts. The higher the math self-concepts the poorer the math achievement. The most important variable for math achievement is reading achievement.

Analysis of the data indicated that the parents' involvement in their child's education had no bearing on the child's achievement. In general, Italian parents are not participants in the education process. They expect their child to study, achieve, and go on to higher levels of education. They feel it is the educators' responsibility to impart curriculum information. The parents will support their children in their studies but not partake in the teaching process. They will visit the school when necessary (Verdino, 2001).

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Table 1

Means, Standard Deviations of the Study's Variables

Variable	Mean		Standard Deviation	
	Males	Females	Males	Females
Socioeconomic Status (SES)	62.17	64.26	11.60	10.95
Family Structure (2P)	1.95	1.99	.22	.12
Books	3.19	2.85	1.04	.95
Pressure (PRESS)	3.28	3.12	.78	.72
Support (SUPP)	3.99	4.16	.69	.58
Monitoring (MON)	3.20	3.11	.64	.67
Intellectual Resources (PID)	2.76	3.01	.89	.86
Parental Involvement (PAINV)	3.73	3.86	1.02	.81
Math Self-concept (Math SC)	1.95	1.98	.79	.76
Reading Self-concept (Read SC)	2.17	1.86	.80	.65
Math Achievement (Math Ach.)	3.85	4.15	.99	.90
Reading Achievement (Read Ach.)	3.84	1.86	.95	.88

Table 2

Pearson Correlation Coefficients between the Study's Variables

Variable	PID	Math SC	Read SC	PAINV
Books		-.22**	-.19*	.22**
Read Ach.		-.32**	-.42**	.19*
Math Ach.		-.34**	-.38**	
PRESS	.19*			
SUPP		-.40**	-.42**	.42**
MON				.57**

* $p < .10$

** $p < .05$

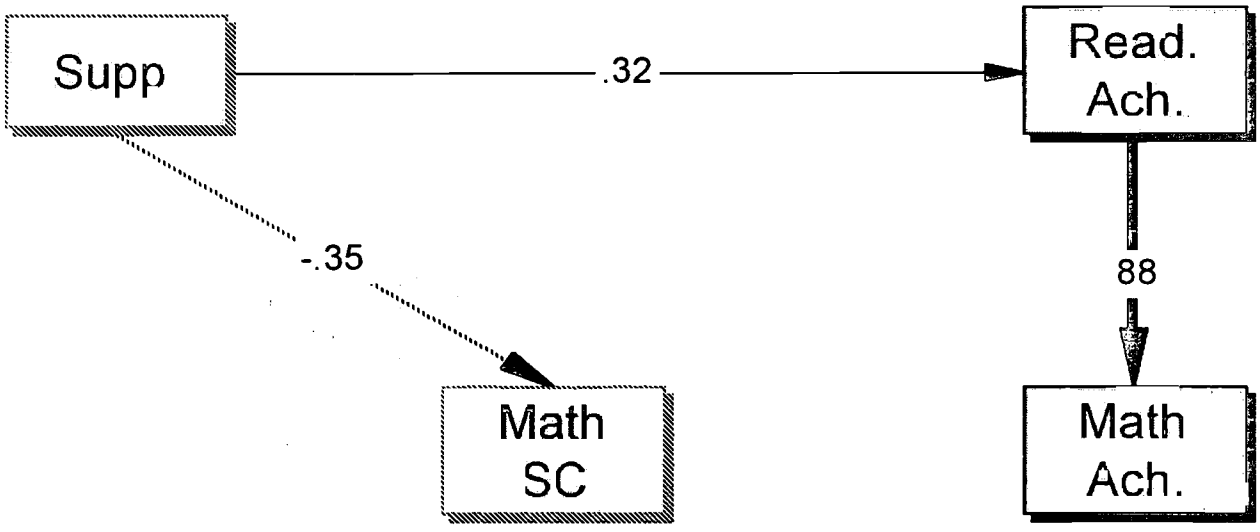

Figure 1. Males' Reading and Math Achievement

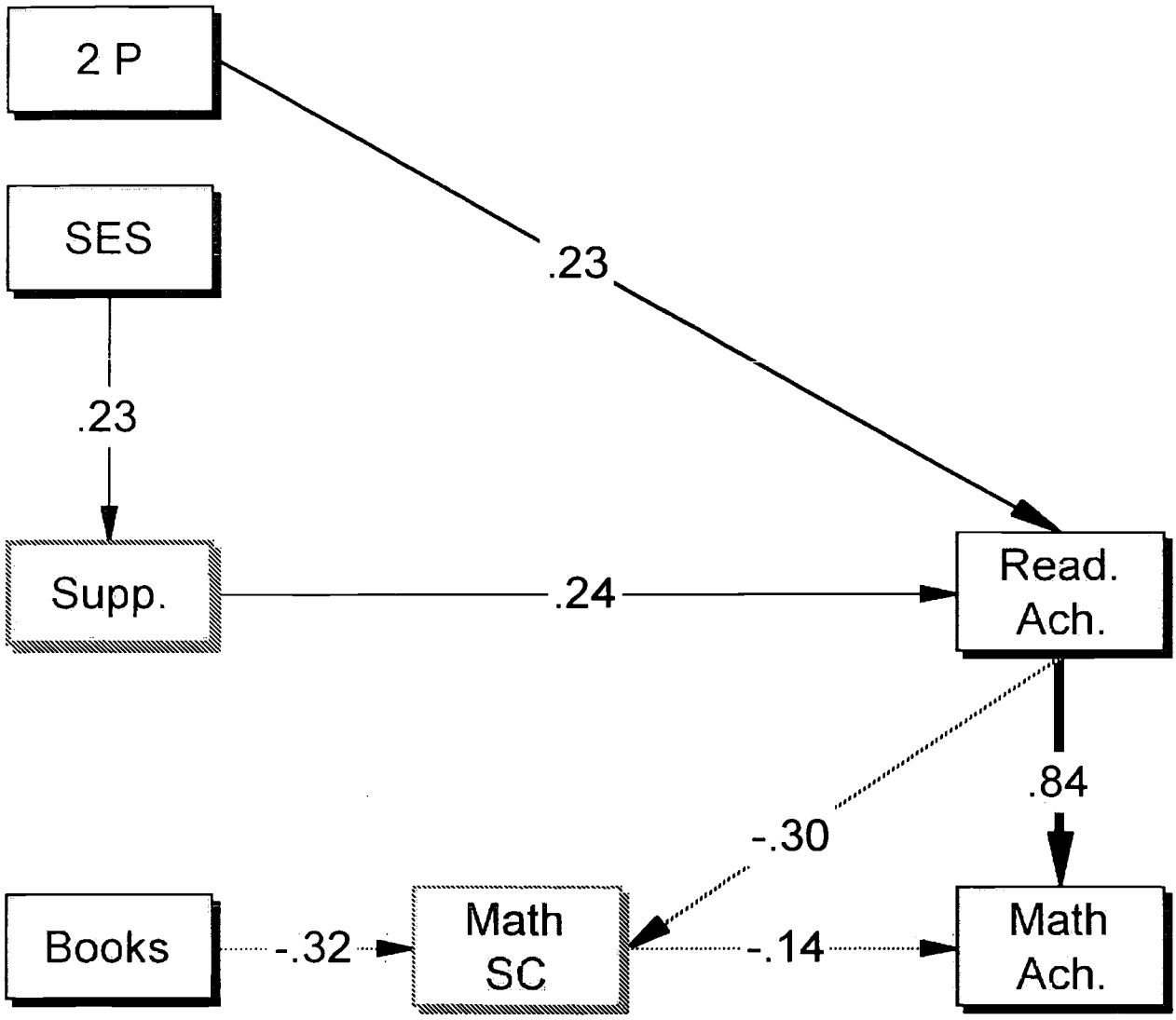

Figure 2. Females' Reading and Math Achievement

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