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THE INFLUENCE OF FAMILY AND SCHOOL CIRCUMSTANCES ON SCHOOL ATTENDANCE IN ELEMENTARY CHILDREN.

by

Alexander Christian Sage

A Dissertation Submitted to the Faculty of the DEPARTMENT OF EDUCATIONAL PSYCHOLOGY In Partial Fulfillment of the Requirements For the Degree of DOCTOR OF PHILOSOPHY In the Graduate College THE UNIVERSITY OF ARIZONA

1998
As members of the Final Examination Committee, we certify that we have read the dissertation prepared by Alexander Christian Sage entitled The Influence of Family and School Circumstances on School Attendance in Elementary Children and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

John R. Bergan
Shitala P. Mishra
Janiece M. Lord-Maes

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copy of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

Dissertation Director John R. Bergan
STATEMENT BY AUTHOR

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School records of 421 third grade students from regular classrooms in six Tucson Unified School District elementary schools were examined. Two schools were selected to represent each of three populations: middle class, working class, and desegregated populations. Nine measures were obtained: (1) gender, (2) ethnicity, (3) number of parents living with the student, (4) parents' employment status, (5) number of siblings, (6) number school transfers, (7) distance between home and school, (8) students' grade awarded by teacher, and (9) number of school absences. School absences fell into three categories, based on reasons for the absences: health, personal, and unexcused. Structural equations analysis was used to model the causal relationships between the family and school variables and school absences. Two latent variables (factors) were proposed to explain the relationships between the family variables and the school characteristics. The family factor characterized the dichotomy between socially-advantaged and disadvantaged families. Socially-advantaged families were primarily white with two employed parents. Socially-disadvantaged families were overwhelmingly minorities headed by a single parent. The school factor also characterized social circumstances: advantaged schools were middle class, white, high-achieving, high parental involvement, and no social programs. As social
class decreased, the schools became increasingly minority, low-achieving, low parental involvement, and had social programs. Socially-advantaged circumstances promoted better attendance. Students from socially-advantaged homes and school had fewer health and unexcused absences as compared to disadvantaged students. Advantaged family circumstances promoted advantaged school circumstances. However, middle class homes with single incomes promoted better school involvement by the parents. Students from segregated schools and single income families had more personal absences (family trips). These families appear to take more vacations during the school year. Finally, students with numerous health absences were likely to have more personal and unexcused absences. The results of this study suggested that different avenues need to be taken to promote the attendance of students from disadvantaged families and schools.
INTRODUCTION

The time spent in formal education is important to an individual’s lifetime success and achievement. Particularly important in this process of education is that the individual be present to receive schooling throughout his or her childhood years. For this reason, school attendance may very well equate with school achievement and lifetime occupational success. Research on school attendance in school age children indicates that school attendance is vitally important to the development of scholastic abilities, long-term educational achievement, high school graduation, and future employment and job skills (Boloz & Varrati, 1983; Caldas, 1993; Ceci, 1991; Darlington & Horn, 1981; De Jung & Duckworth, 1985; Donahoe & Zigmond, 1990; DuFour, 1983; Easton & Engelhard, 1982; Ehrenberg, Ehrenberg, Rees & Ehrenberg, 1991; Entwisle, Alexander, Cadigan, & Pallas, 1987; Hagborg, Masella, Palladino, & Shepardson, 1991; Lamdin, 1996; Larsen & Robinson, 1989; Mabey, 1981; Monk & Ibrahim, 1984; Oelerich, 1984; Rieck, 1984; Sosa, 1986; Stehben, Kisker, & Wilson, 1983; Waldron, 1985; Walker, Steiber & O’Neill 1990). The powerful link between school attendance and sustained school achievement has been found in numerous studies looking at all classifications of student populations throughout the U.S. and internationally.
School attendance has a strong positive relationship to the development of cognitive abilities and intellectual capabilities in school children. An extensive literature review by Ceci (1991) indicated that the quantity of schooling greatly affected the development of higher cognitive processes; those processes related to intelligence (IQ scores). The development of these intellectual cognitive processes were enhanced through increased amounts of schooling; however, according to Ceci, the quality of the schooling was inconsequential.

School attendance clearly affects school achievement and scholastic abilities. Easton and Engelhard's (1982) longitudinal study data of students from kindergarten through 8th grade indicated a significant positive relationship between school attendance and higher grades, as well as improved scores on standardized tests from teacher-assigned readings. Research on pre-school and kindergarten students further indicate that school achievement is enhance by school attendance. The language-related skills of male pre-school students were affected by their amount of attendance (Larsen & Robinson, 1989). Kindergarten attendance and experiences were found to impact children's later school achievements (Entwisle, et al., 1987).

School attendance is also linked to the amount of boredom and trouble-making children experience in their childhood years (Becker, 1983; Walker, et al., 1990).
Children are less likely to be bored or get into trouble when there is work demanded of them, and when they are under constant adult supervision and monitoring during school hours (Garbarino, 1980). Ihle (1978) has argued that in a chaotic world, compulsory attendance provides children stability.

Structured, working environments not only keep children from boredom and out of trouble, they also build the children's self-esteem. School provides the students with the perception that they are making accomplishments and doing what they are supposed to be doing. School also provides opportunities for children to function independently, without their parent's involvement or supervision, which is a very important part of children's development (Minuchin & Shapiro, 1983). School not only provides opportunity for children to function independent of their parents, but additionally, gives the students a place to socialize with peers and other adults. While it is true that peer and adult socialization can take place outside of the school environment, school settings are the most available and attended places.

Probably one of the greatest barriers to school attendance in children is coming from disadvantaged social circumstances, such as single parent homes, poverty, and high crime areas to name a few. With the growth of single working parents, the reports of "home alone" children are increasing. Single parents who work have obvious difficulties accommodating the transportation and supervision required to
get their children to school. Single working parents, also, may have difficulty accommodating children that stay home from school. The problem these single working parents face is where to keep their children when the children are not attending school. It is extremely troublesome for parents to take their children with them to work; and daycare can be economically draining on their finances. If the child must stay at home, safety for younger children becomes an issue. If a home has more than one school age child, other siblings may react negatively to one of their brothers or sisters staying home on a school day? There is evidence that 3rd - 5th grade students with older siblings who are dropouts have poorer attendance than those students with older siblings that regularly attend school (Hess & D'Amato, 1996).

In addition to the negative outcomes children experience by not attending school, the school districts themselves are also directly affected. A school's student attendance record affects the amount of money the school gets. The higher the general attendance in a school, the more money the school receives from the state (The Executive Educator, 1983). Within the Tucson Unified School District, every unexcused absence costs the school district forty five dollars in state aid.

As has been discussed, there is a substantial relationship between school attendance and academic achievement. School absenteeism is linked to at-risk
students (Ingersoll & LeBoeuf, 1997; Rush & Vitale, 1994; Watkins, Wilson, & Watkins, 1994), and to dropping out of school in later years (Kandel, Raveis, & Kandel, 1984; Watkins, et al., 1994). Walker, et al. (1990) reports that school attendance is one of main predictors in identifying antisocial and at-risk middle school students. Moreover, poor academic performance has been identified as an important predictor for dropping out of school (Duckenfield, 1997; Watkins, et al., 1994). For this reason, school attendance in children correlates highly with high school graduation (Duckworth, 1988; Garry, Jackson, & McKinney, 1996; Ingersoll & LeBoeuf, 1997; Walker, et al., 1990). To curb absenteeism, some school districts impose academic penalties on those students with excessive absences, such as denying school credit or giving the student a failing grade (Bernheim, 1985; Carruthers & Driver, 1980; Malbon & Nuttall, 1982; Pepe, Tufts, & Gluckman, 1985; Zirkel & Gluckman, 1982).

High school graduation is crucial to future higher education and employment. One study pointed out that the unemployment rate of high school graduates in the work force was 11 percent, a rate much lower than the 36 percent for those individuals that did not graduate from high school (Cohany, 1986). In addition, a study by Kandel, et al. (1984) linked dropping out of school with later adult problems such as limited occupational and educational
attainment, lower health status, and problems with delinquency and drug use.

Research on school attendance also indicates that school attendance is related to work attendance (Linnehan, 1996). Projects such as "HIRE Education" in Delaware state are joint efforts between businesses and industries, and the school systems to improve attendance in school children. The HIRE Education project allows employers to legally obtain high school attendance records of students prior to hiring them (VanSciver, 1997). School attendance also affects what children learn about their cultures, other cultures, work ethics, and skills that they will need to earn a living later on in life (Cohany, 1986; Linnehoen, 1996; VanSciver, 1997). As Beck (1989, p. 674) has eloquently put it "Unlike the informal world of peer relations, school is a formal institution deliberately established to supplement the family's function of transmitting to children the knowledge and skills required to become productive members of society."

Scope of Work

This present study was an attempt causally link aspects of children's social conditions, mediated through family and school circumstances, to their rates and patterns of absenteeism throughout the school year. In addition, this study limited its focus to the information provided in students' school records. It is hoped that this study will
inform schools and school districts as to how the information they collect can be used to identify children and schools that will be in need of assistance in addressing school attendance needs; as well as, provide suggestions as to additional information that might be collected to better assist schools in understanding school attendance patterns. Not only will this study inform the academic community as to forces affecting elementary school children's attendance, but it will also gauge the performance of current attendance programs to address the needs of socially-disadvantaged and minority children.

It is acknowledged by the author that the information collected from the sample's school records is of a limited nature. However, this is the kind of information available to school districts for making attendance policies and changes to policies. The goal of this study was to causally model the available data, with the intent to draw inferences about factors of causal priority to school attendance patterns. In addition, this study addressed the student population as a whole, in other words, all students were addressed, not just those students with high absenteeism, which is the focus of many studies in the field. Much information about the students and their circumstances could not be ascertained from the information on their school records. Many measures, such as average family income, parental education, general health and intelligence scores of
the student, were unavailable for this study. Specific recommendations are made that suggest additional information that may improve follow-up studies, and likely provide more complete representations of the causal factors affecting school attendance and how these can be addressed by school districts.

REVIEW OF ATTENDANCE LITERATURE

Attendance Definition

Extensive review of the literature reveals few, if any, studies that define general school attendance. Instead, most deal with and define 'unexcused' non-attendance, using such terms as absenteeism, school refusal, truancy, expulsion, non-attendance, and parental withdrawal (Berg, 1992; Berg, Goodwin, Hullin, & McGuire, 1987; Cooper, 1984; Cooper, 1986; Cooper & Mellors, 1990; Fergusson, Horwood, & Shannon, 1986; Galloway, Martin, & Wilcox, 1985). Although all these terms, mentioned above, are used in the current literature, the two most frequently applied and therefore, best defined, include truancy and school refusal.

Both truancy and school refusal generally refer to students who continuously succeed at not attending school through various means. School refusal normally refers to students who refuse to attend school with their parents' knowledge and consent. School refusers are generally students who are afraid of or intensely dislike school, and
remain at home, upset with the "prospect of attending school." (Berg, 1992). Truancy generally refers to the students who miss school without their parents knowledge or consent (Berg, 1992, Cooper, 1986; Hersov, 1977). Truancy is seen as a conduct disorder, while school refusal is seen as neurotic disorder or resulting from disturbed family relationships. Tyerman (1968), however, does not see any reason to differentiate between these two types of absences since both are within a single continuum of school absenteeism.

Fergusson, et al. (1986, p.115), in their study defined general school attendance as being "the number of half days that school was attended out of the total possible number of half days of attendance." School attendance for this present study was defined as the physical presence of the student in school during the days required by the school district. Tardiness was not considered an absence unless the tardiness went a half day; it was then considered a half day absence.

Previously Studied Populations

Current studies on school attendance have focused on a wide variety of target populations. Most of these populations have included female and male school age children from pre-kindergarten to 12th grade (Easton & Engelhard, 1982; Helm & Burkett, 1989; Powell & Steelman, 1993; Sheats & Dunkleberger, 1979), although, some studies deal with post-secondary populations. Student populations have been
evaluated from the United States (Frecknall & Luks, 1992; Lee, Bryant, Noonan, & Plionis, 1987; Pena, 1985; Sentelle, 1980; VanSciver, 1986; Woodall & Bond, 1993), and internationally (e.g., Japan, New Zealand, England) (Hendry & McKenzie, 1978; Levinger, 1984; Matsumoto, Matsumoto, & Kawase, 1991; Tansey, 1995). However, most studies in the literature tend to focus on special target populations, as opposed to the general student populations attending school.

Many studies have specifically focused on minority children, within the United States and abroad, such as African-American, Mexican-American, Pacific Islanders, Maori, Navajo children and language minority children (Boloz & Lincoln, 1983; Boloz & Varrati, 1983; Garibaldi & Bartley, 1988; Grant, 1973; Hess & D'Amato, 1996; Wright, 1991). In addition, a large group of studies have focused on children from disadvantaged homes. These disadvantaged children come from homes with parents who: (1) are frequently away from home due to travel, (2) are alcoholic fathers, (3) have mental disorders, (4) are homeless, have been homeless, or are about to be homeless, (5) are single-parents, (6) are step-parents, (7) have low incomes and are socially-disadvantaged, and (8) are teenagers (Awad & Perillo, 1988; Featherstone, Cundick, & Jenson, 1992; Fergusson, et al., 1986; Fitzgerald, Prichard, & Kimsella, 1988; Hess & D'Amato, 1996; Leadbeater, 1996; McNaughton & Smith, 1993; McSparrin, 1993; Murphy, O'Farrell, Floyd, & Connors, 1991; Seitz &
Moreover, the current research tends to focus on children who are at risk. These at-risk children include children with: (1) chronic illnesses such as asthma, cancer, sickle cell anemia, juvenile pain, congenital coagulation disorder, Tourette's syndrome, and AIDS (Celano & Geller, 1993; Fergusson, et al., 1996; Kvist, 1988; Lansky, Carins, & Zwartjes, 1983; Major & Joy, 1993; Mayes, Hanford, Schaefer, & Scogno, 1996; Nettles, 1994; Sexson & Madam-Swain, 1995; Shapiro & Dinges, 1995; Stoff, Bacon, & White, 1989; Teperi & Rimpela, 1989; Weiss & Hermalin, 1986; Weitzman, Walker, & Gortmaker, 1986; Whitehouse, Shope, Sullivan, & Kulik, 1989), (2) mental disorders, (3) academic and behavioral difficulties, and (4) least favorable backgrounds and circumstances.

At-risk children with mental disorders are dealing with disorders such as school phobias, hospitalized and non-hospitalized emotional disturbances, autism, nonautistic mental disorder, and other neurological problems that may hamper school attendance. At-risk children with academic and behavioral difficulties such as mental retardation, PDD, learning disabilities, retention, low-achievement, and psychosocial and behavioral difficulties (i.e., recommended for expulsion from school, introverted, low-self esteem, juvenile delinquents) may find school unpleasant and avoid it
Attendance problems are also found in children from least favorable background and circumstances such as foster children, children with chronic somatic complaints, children in self-contained classes, physically handicap children (e.g., hearing impaired), pregnant and teenage mothers, inner-city children, and children with older siblings who had persistent school attendance problems or dropped out of school (Buchanan & Scobie, 1988; Kortering, Haring, & Klockars, 1992; Leadbeater, 1996; Lee, et al., 1987; Litch, Gard, & Guardino, 1991; Margalit & Raviv, 1984; McSparrin, 1993; Polisstok, 1987; Schwaback, 1985; Seitz & Apfel, 1994; Sullivan & McDaniel, 1983; Waldron, 1985).

Previously Studied Factors Affecting Children's Attendance

Previous studies have focused on a variety of factors that affect school attendance. These factors can be grouped into six categories: (1) extrapersonal factors, (2) legal factors, (3) immediate antecedents and consequences factors, (4) family factors, (5) child factors, and (6) drugs factors.
Extrapersonal Factors

Extrapersonal factors refer to the external, environmental conditions that influence children's behavior. The environment that a child finds him or herself in, can dramatically affect conditions promoting school attendance. For example, urban and rural settings have very different environmental conditions. Children in cities must deal with many conditions of the city: crowds, crime, smog, noise, and limited space, to name a few. Whereas, children from rural settings may live several miles away from the nearest school and struggle with transportation difficulties and with social isolation and boredom. The schools themselves present very different environmental conditions to their student populations: from lighting to heating systems to the spaciousness of the classrooms. For these reasons, environmental factors must be taken into account as a variable effecting school attendance.

Urban settings seem to present more difficulties for children and for childhood adjustment than do rural ones. The problem of homelessness plagues cities and the children that are homeless suffer in their education and in school attendance. Neiman (1988) had noted that homeless children become restless or aggressive when they are forced to make frequent residence changes leaving behind old friends, teachers, and schools. Frequent residency changes and school
transfers are one of the factors that negatively affects school attendance in children (Fitzgerald, et al., 1988). Rotton (1978) has found that another stressor of cities and urban dwellings is pollution. Air pollution has been found to negatively affect school attendance in elementary school children (Bury, 1970). Pollution and homelessness are just two of many stressors city dwelling children must face which cause attendance problems in schools located in cities.

Light is another environmental factor that has been demonstrated to have an effect on school attendance. Experiments conducted by Hathaway (1993, 1994) showed that elementary school children exposed to full-spectrum fluorescent lamps with ultraviolet enhancement improved their school attendance over the periods of attendance when regular fluorescent lamps were used. The heating and cooling systems of schools may also have an affect on school attendance. Ineffective systems may make the in-school temperature conditions unpleasant and reduce school attendance. In addition to light and pollution, classroom size has been found to have an effect on school attendance. For example, lower truancy rates have been detected in smaller schools (McPartland & McDill, 1977; Reynolds, Jones, Leger, Murgatroyd, 1980)

Legal Factors

Legal factors refer to the laws and law enforcement policies that have been instituted by federal, state, and
local governments to force compliance of children's behavior, in this case, school attendance. Compulsory attendance laws likewise influence the amount of school attendance in children. These compulsory school attendance policies or laws originate from either the school district (Carruthers & Driver, 1980; Malbon & Nuttall, 1982; Pepe, et al., 1985); the state (Bernheim, 1985; Eastwold, 1989; Lines, 1983; Pardini, 1995; Pepe, et al., 1985; Roe, 1987; Shelton & Garrett, 1977; Wilson, 1993; Zirkel & Gluckman, 1982); both the district and state (Pepe, et al., 1985); or from federal organizations (Fulton, Metress, & Price, 1987). Compulsory school attendance policies permit school districts to involve parents and school officials in reducing truancy rates: by reducing grades and/or withholding or taking away credits on students with unexcused absences (Pepe, et al., 1985) by giving failing grades to those students with excessive absences (Malbon & Nuttall, 1982); and by withholding credits for any course in which the student has been excessively absent (Carruthers & Driver, 1980).

Some compulsory attendance laws are directed at the parents of truant students by demanding the parents to be in court (Shelton & Garnett, 1977; Wilson, 1993), pay fines, or serve jail sentences if their children fail to attend school (Eastwold, 1989; Goldman, 1989; Pardini, 1995). However, there have been court cases challenging these school policies arguing that it is illegal to deny credit or to lower grades
because of excessive student absences (Zirkel & Gluckman, 1982). On the other hand, other court cases have supported schools in their attempts to improve school attendance by arguing that schools may impose penalties on all unexcused absences and that absences may be used as part of overall academic evaluation (Bernheim, 1985).

There are arguments for (Becker, 1983; Ihle, 1978; Hendry & McKenzie, 1978; Stipek, 1981) and against (Hendry & McKenzie, 1978; Lines, 1983; Pitman, 1987; Wolfthal, 1986) the adoption of mandatory attendance laws. There are also those who argue to lower the compulsory education age to fourteen (Brown, 1975), and those that argue to raise the age to eighteen (Kiernan, 1975). The downside is that some attendance laws may actually bar people with contagious disease from school (e.g., tuberculosis, AIDS; Roe, 1987).

Locally, in Tucson, Arizona, the Abolish Chronic Truancy Now (ACT Now) program is a joint effort among school administrators, the Pima County Attorney’s Office, and the Center for Juvenile Alternatives to fight chronic truancy (Samuelson, 1998). Under ACT Now’s policies, parents of excessively truant children can be fined, forced to do community service work at schools, placed on probation, or even jailed if they do not attempt to improve their children’s attendance. Presently, ACT Now policies are in operation in many Tucson school districts. From November of
1996 to October of 1997, 215 cases had been prosecuted in Pima County under the ACT Now policies.

**Interpersonal or Immediate Antecedents and Consequences Factors**

Interpersonal or immediate antecedents and consequences factors refer to behaviors that are learned and maintained through rewards, punishments, observational learning and social/situational learning. The influential factors researched by previous studies can be divided into five categories: (1) school-based interventions, (2) therapy and behavioral interventions, (3) local community-based business interventions, (4) alternative schools and classrooms interventions, and (5) punitive interventions.

**School-based interventions.** Several school-based interventions have been found to improve school attendance in children and adolescents. Some of these school-based interventions include, for example: (a) a team teaching model approach which provides students with a team of regular and special education teachers to assist them (Armbruster & Howe, 1985), (b) school staff members teaching the students about the importance of attendance (Reynolds, 1977), and providing the students with basic skill's instruction (Gordon, 1993; Grala & McCauley, 1976; Jenkins, 1995), and (c) providing tutoring services to the students that uses the students themselves as tutors to younger students (Mayer, 1993; Sosa, 1986). Furthermore, positive effects on school attendance
have occurred through improving communications between schools and students and their parents (Ford & Sutphen, 1996; Wickert, 1987); and improving the perception of students with regard to their classroom social environment (i.e., classes that were perceived by students as high in competition and teacher control and low in teacher support results in higher absenteeism) (Moos, 1978).

Positive reinforcers that improve school attendance include such items as: a token reinforcement program that provides microcomputer free-time as a reinforcer (Inkster & McLaughlin, 1993), providing tangible rewards (Wickert, 1987), and allowing exemptions from test taking (Beetler, 1984). Other studies found improvement in school attendance through interventions such as career guidance (Gordon, 1993), counseling and peer counseling support (Gordon, 1993; Grala & McCauley, 1976; Phillips & Rosenberger, 1983), focused group approach/experience in which students learn strategies for behavioral change and improved studying skills (Potter & Bulach, 1996), and the creation of positive relationships between advisor and advisee (Testerman, 1996).

Involvement from social workers, local businesses, and parents (Ford & Sutphen, 1996; Jenkins, 1995; Phillips & Rosenberger, 1983), consultation to teachers with regard to making classrooms less punitive and more positive and to help teachers to be more positive (Mayer, 1993; Phillips &
Rosenberger, 1983), programs that recognize students individually and as a group (Armstead, 1980; Wickert, 1987), and use of videotape that presents social issues (Agosta & Jackson, 1991), school attendance review board, (Wickert, 1987) have also been found to have a positive effect on school attendance.

Several programs have been designed to improve school attendance in poor, minority, and disadvantaged children. These are the Core Knowledge Sequence (Hirsch, 1991), school feeding programs (Levinger, 1984), and Chapter 1 school wide project (Hirshman, 1996), and the Comer School Development Program (Zimmermann, 1993), to name a few. All of these programs have reportedly shown improved school attendance in their target populations.

Other academically supportive programs have demonstrated substantial success in improving school attendance in many children across the United States. Homeless children from two suburban schools in Florida improved their school attendance through the implementation of an individual tutorial approach; sensitizing school personnel to the issues of homelessness through teacher in-service training programs and manuals; and through a homeless project-service pamphlet which facilitated better communication between the schools and the homeless parents (Brown, 1993)

Programs designed to improve children's self-esteem have proven effective in increasing school attendance. Gilbertson
(1993) implemented a 12 week program in which 25 fifth grade students worked on building their self-confidence through hands-on activities which, in turn, improved their school attendance. Furthermore, techniques used to increase self-esteem through cooperative learning, parental involvement, individualized learning techniques, and counseling have increased school attendance in 5th graders (Tanksley, 1994). Schools in Austin, Texas improved their students' school attendance by teaching their students to be responsible, respectful, and care for animals and others through a comprehensive environmental educational program (Estes, 1993).

Reward and punishment factors such as monetary incentives also affect school attendance. Reid and Bailey-Dempsey's (1995) study used monetary incentives to improve school attendance in 11-17 year old at-risk girls. Through a contract of either "all or none" or an "incremental incentive", the girls were rewarded with money if their school attendance was improved. The results of Crosby's (1992) use of "a visible/powerful reward system," whole language approach to reading, critical-thinking instructional program, and development of a therapeutic bond with at least one teacher decreased truancy in three 12-18 year old students who were hospitalized for severe emotional disturbances. Crosby's results indicated noticeable improvement in attendance with all 3 students.
Sturgeon and Beer's (1990) study of high school students in rural areas reported that rewarding students with an exemption from taking semester examinations increases school attendance. A home-based reinforcement program, reported in Gupta, Stringer, and Meakin's study (1990), showed improvement in attendance in secondary school students: when an improvement in attendance was demonstrated by the student, a credit card was issued to the student. These credit cards were exchanged for positive rewards from the students' parents. The students in this study consists of 24 third-graders from two classes. These reward-based programs demonstrate the positive effects of student reinforcement on attendance. Others have argued for using intrinsic motivators instead (e.g., creative teaching techniques and stimulating classroom structures) to increase school attendance (Horn, 1991). And indeed, the non-monetary programs (self-esteem building) to date have proven more effective, however, the effectiveness of both types programs was not long term; none of the effects lasted more than a year.

There are a wide variety of other academic, behavioral, and parental supportive interventions that have resulted in improvements in school attendance (Ando 1991; Berg, Goodwin, Hullin & McGuire, 1986; Blagg & Yule, 1984; Boolis, et al., 1990; Burke & Silverman, 1987; Estes, 1993; Hagopian & Slifer, 1993; Keat & Metzgar, 1985; Koizumi, 1988; Matsumoto,
et al., 1991; Reid & Bailey-Dempsey, 1995; Seitz & Apfel, 1994; Weiss & Hermelin, 1986). Many such reinforcement interventions have been used to improve attendance including cash awards, guaranteed scholarship funds, valuable prizes (Goldman, 1989), "except no excuses for truancy and reward students for exemplary attendance" (Haslinger, Kelly, & O'Lare, 1996), delivering traditional curriculum in a nontraditional nonremedial way (Taylor & Reeves, 1993), parental involvement, improved school climate and counseling (Peck & Eberhard, 1988), support groups and alternative educational programs working directly with students, families, and social service agencies (Hegner, 1987), attendance outreach, alternative educational programs, guidance, counseling and health (Quinones, 1987), coercive and positive incentive approaches (Finn & Toby, 1989), school breakfast programs (Meyers, 1989), school climate enhancement through parental involvement improved attendance (Haynes, Comer, & Hamilton-Lee, 1989), policies that work with school community and parents (Kube & Ratigan, 1991), comprehensive attendance policy that encourages students to have good attendance (Kube & Ratigan, 1992), and a committee consists of teachers and administrators to counsel students (Konet, 1983).

Punitive interventions. Many school-based programs have been developed that deliver negative consequences to chronically absent students. These punitive measures have
proven effective in improving attendance in students with attendance problems. A Michigan-based high school program denies school credit to students with absences exceeding 6 per class (McNitt, 1983). This program resulted in attendance rates that improved from 3.5 percent to a 12 percent. De Jung & Duckworth's (1985) two year study of eight thousand high school students who frequently cut classes found that forcing students to make up course work was a powerful deterrent to being absence.

Saturday school and after-school detention for high school and junior high students has also been used with some effectiveness by schools to deal with attendance problems (Leatt, 1987). Goldman (1989) found that tying students' attendance records with getting their drivers' licenses proved effective in reducing absenteeism, as did imposing other penalties for repeated absenteeism. Dowdle (1990) and Duckworth (1988) both found that imposing various kinds of penalties on high school students who missed several days per year reduced subsequent absenteeism in these students.

Alternative school and classroom interventions. Non-traditional schools and classrooms have been found to have positive affects on student attendance rate. For example, students from catholic schools seem to have better attendance records than children from public schools (Jensen, 1986). Whereas, vocationally-oriented schools produce higher truancy
rates: minorities in these vocational schools have the highest rates of absenteeism and truancy (Bos, Ruijters, & Visscher, 1992).

Extending school hours has been found to produce fewer absences (McFayden, Boyce, Sobolewski, & Phillips, 1988). Extended class hours, Saturday classes, and a business-like atmosphere has reduced dropout rates among disadvantaged and underachieving urban students at Chicago's Recovering the Gifted Child Academy Middle School (Pool & Hawk, 1997). A six-week remedial summer school in a Wisconsin-based high school has also reduced that school's dropout rate (Roherty & Gruber, 1986). Blankenship (1984) found that four-day school weeks cause noticeable improvements in school attendance in Kansas. Venable (1996) also found that elementary students from year-round schools have better attendance. Campbell (1994), however, found no consistent data with regard to improved attendance from other year-round schools.

Non-traditional classes such as longer bilingual programs have been found to improve attendance in Mexican-American secondary students in Houston, Texas (Curiel, Rosenthal, & Richek, 1986). Specialized self-contained classes also improved attendance in twenty African-American male students more than a matched group who did not attend the specialized classroom (Hudley, 1995).
Local community-based business interventions. Local community-based businesses have gotten involved in intervention programs to improve attendance in local schools. A collaboration between six middle schools and several nonprofit community-based organizations in New York city demonstrated that the association between the two improved attendance in the schools' students (Jones, 1992). Improvements in attendance were also made by high school students in Iowa who are rewarded for perfect attendance by local community businesses (Dowdle, 1990).

A program funded by Coca-Cola USA called Value Youth Partnership Program which gives hispanic students with a high risk for dropping out of school an opportunity to serve as tutors to younger students, has decreased these students' high dropout rates: only six of these one hundred high risk students in this program actually dropped out (Sosa, 1986). Four other community-based organizations in New York city have also involve themselves in dropout prevention (Jones, 1996). Vo-Tech, a local business in Butler County Pennsylvania, promised students a chance to win a car through improved attendance though a Win-a-Car program (Musko, 1992).

Therapeutic and behavioral interventions. A variety of therapeutic and behavioral interventions have proven effective in improving children's school attendance. Blagg and Yule (1984) examined four different approaches to
treating school phobia in 11-16 year old students, and found that a flexible behavioral therapeutic approach was significantly more effective than the other three approaches: hospitalization, psychotherapy, and home-tutoring.

Matsumoto, et al. (1991) found that Morita's therapy to be an effective treatment for school refusal. Morita's therapeutic techniques include symptom acceptance, light exercise, and preparation for actual life. Morita suggested that the school refuser's physical symptoms should be the focus of therapeutic treatment. School refusal and avoidance has also been effectively treated through other behavioral techniques. For example, a six year old girl with school avoidance improved her school attendance after receiving gradual exposure to a school environment with positive reinforcement. Her behavioral gains persisted for 2 and 9 months post-treatment (Hagopian & Slifer, 1993).

Other therapeutic interventions have demonstrated a positive effect on school attendance. For instance, Keat and Metzgar's (1985) HELPING group counseling model (Health, Emotions, Learning, Personal relationships, Imagery, Need to know, and Guidance) was found to improve school attendance in five male third-graders who were having attendance problems. Berg and colleagues (1986) found that children with severe attendance problems who received treatment (interviewed before their court appearance, 3 months, and a year later)
had better school attendance than children who did not receive treatment. Gordon-Rosen (1984) found that Junior High inner-city children improved their attendance after their parents received "standard Adlerian techniques" training.

Other therapeutic treatments for school refusal students include a multimodal approach combining student and family, and school factors (Bell, Rosen, & Dynlacht, 1994), counseling (Friesen, 1985; Rohrman, 1993), group counseling (Page & Chandler, 1994) improving parent-child relationship and reforming parent-child proper order and boundary (Hsia, 1984), positive feedback and social skills training (Fiordaliso, Lordeman, Filipczak, & Friedman, 1977), the therapeutic effects of puppetry (Schmidt & Biles, 1985), behavioral contract intervention (Murphy, 1987), therapeutic discipline (Miller, 1986), and a cognitive-behavioral approach that emphasizes the role of teachers in the identifying and treating school refusal (King, 1994).

Several other studies have reported therapeutic interventions that improve school attendance that will not discussed here (see Bell, et al., 1994; Fernandez & Cardenas, 1976; Fiordaliso, et al., 1977; Kearney & Beasley, 1994; Miller, 1986; Murphy, 1987; Page & Chandler, 1994; Schmidt & Biles, 1985).
Family Factors

Family factors refer to the influences of the familial setting; circumstances (social and situational) and environmental, on children's behavior. These family factors include parental influences, such as the parent's abilities to provide parental, financial, and emotional support to the child; sibling influences, such as the sibling's modeling of attendance behavior; and family environment influences, such as frequent residency changes.

State-based family support programs. State-based family support programs are designed to provide financial support to disadvantaged children and their families in order to keep the children in school. The Wisconsin Learnfare experiment was designed to give financial aid to the families of teenagers with poor attendance records (Quinn, 1995). The financial aid was provided only if the teens attend school. The experiment, however, did not improve the attendance of the teenagers, but did put a lot of stress on the teens' families depending on the financial assistance. The Ohio's Learning, Earning and Parenting (LEAP) program, on the other hand, did improve attendance in pregnant and parenting teens on welfare (Wood, 1995).

Other family support programs that have had a positive effect on children's school attendance include an intervention at provided aid to the low-income parents of
firstborn children. The observed beneficial effect was on the later born offspring whose school attendance was improved as compared to their older sibling or to later born children of unaided parents (Seitz & Apfel, 1994). Weiss & Hermalin (1986) found that providing an economical home-based asthma training program to the parents of asthmatic children improved the children's school attendance.

**Non-parental adult involvement.** The involvement of adults, other than the students' parents has been found to have a positive effect on school attendance. Several important adult roles in a child's life can be influential on the child's school attendance. Some teachers have developed in-school programs that successful improved their students' attendance (Sentelle, 1980). Truant officers improve attendance by enforcing compulsory attendance laws on truant students (Stover, 1991). Programs that use other adults such as "big brothers or big sisters" can help students with their attendance (Frecknall & Lurks, 1992). A program know as "Parents as Educational Partners" uses parents within the school system to help students in various ways, and has been shown to improve attendance in third graders (Kennedy, 1991). The use of community adults as advocates and mentors in projects such as "Project Raise" which is sponsored by many communities improves children's school attendance (McPartland & Nettles, 1991).
Home contacts. Home contacts by people like truant officers (Miles, 1974; Stover, 1991), principals, or school secretaries have proven to increase children's attendance (Sheats & Dunkleberger, 1979). Home visits and telephone calls to homes have also been found to have a positive effect on attendance in children and high school students (DuFour, 1983; VanSciver, 1986; Woodall & Bond, 1993).

The use of automatic computerized telephone calls to homes of absent students have improved attendance in children (Jacobson, 1985; McGinty, 1985; Pena, 1985; The Executive Educator, 1983) One of these automatic computerized calls may proceed like this, "Good evening. I'm Tom Jones, principal of Central High School. I am calling to let you know that your child was absent from school today. Please call the attendance officer at 555-1212 tomorrow between 8 a.m. and 2:30 p.m. to explain the absence." (The Executive Educator, 1983, p.8).

Other family factors. Family environmental factors, such as multiple residency changes during the school year, socially disadvantaged backgrounds, homelessness, severely ill parents, sibling influences, pre-school and day-care experiences, alcoholic parents, economic and cultural variables, and the number of parents at home, all seem to impact children's school attendance. (Awad & Perillo, 1988; Featherstone, et al., 1992; Fergusson, et al., 1986;
Featherstone et al.'s (1992) study of 6th-9th graders from intact, reconstituted, and single-parent families found that the children from intact families had fewer absences and less tardiness. Other studies found that teenage parents themselves also have school attendance problems (Leadbeater, 1996; McSparrin, 1993; Seitz & Apfel, 1994). Children from home-school parents probably have the best school attendance of all students.

Not only does the number of parents in the home affect children's school attendance, but the health of the parents also affects whether children attend school. Murphy et al. (1991) found that children of alcoholic fathers had more school absences than children of non-alcoholic fathers. Children whose parents suffered from mental disorders (e.g., severe delusional system, paranoid/schizophrenic mothers) also had more school absences than children of mentally healthy parents (Awad & Perillo, 1988; Smith & Horne, 1988).

Children from economically and socially disadvantaged homes or backgrounds also have a problems attending school regularly (Fergusson et al., 1986; Rafferty, 1995; Shaver & Dornbusch, 1993; Warash & Markstrom-Adams, 1995). Studies of homeless children emphasize that poor school attendance in
these children is due to the homeless parents' inability to provide transportation, appropriate clothing, medical care, food, and a stable home environment (causing frequent school transfers) for their children (Friedman & Stamen, 1990; Neiman, 1988; Rafferty, 1995; Shaver & Dornbusch, 1993; Utah State Office of Education, 1992).

Fourth grade children from disadvantaged backgrounds, single-parent homes, or both improved their school attendance through the involvement of parents and volunteers in their education, and through helping the students develop more positives attitude toward themselves, school, home, and community activities (Jennings, 1993).

The school attendance patterns of older siblings may potentially affect younger sibling's attendance. Hess and D'Amato's (1996) study of Mexican-American children in the 3-5th grades found that children who have older siblings who dropped out of school had poorer school attendance than children of non-dropout older siblings. The close spacing of siblings in a family also increases the likelihood of dropping out of high-school in that family (Powell & Steelman, 1993). Last and Strauss (1990) found that the likelihood of a child showing school refusal can be predicted based on the child's mother's history of school refusal problems.

School attendance has also been correlated significantly with families that move frequently during the school year,
which disrupts the children's educational process due to school transfers. Fitzgerald et al. (1988), Shavers and Dornbusch (1993), and Faunce & Murton (1966) have found that frequent residential changes result in poor school attendance in children.

To summarize, the following family factors have been found to affect children's school attendance negatively: homelessness (Rafferty, 1995), close age spacing of siblings (Powell & Steelman, 1993), extenuated family circumstances (Ennis, 1986), poverty (Warshaw, 1985), disadvantaged circumstances (Galloway, 1982), disorganized families (Miles & Ury, 1978), youths in foster care homes (Lee, et al., 1987), a minority in a foster home (Schwaback, 1985), and lack of parental involvement (Tansey, 1995).

Child Factors

Child factors refer to those influences on the child's behavior resulting directly from the child's make-up, nature and life experiences. Reviews of previous studies that have looked at the child factors involved in school attendance can be grouped as follows: (1) physical and mental health, (2) personality, (3) disabled children, (4) pregnancy and teen mothers, and (5) minority children.

Physical and mental health. The physical and mental health of children has a significant effect on their school attendance. Children with chronic illnesses, such as cancer, asthma, coagulation disorder, sickle cell disorder, juvenile
rheumatoid arthritis, and rheumatic disease, have substantially more school absences than their normal peers (Celano & Geller, 1993; Kvist, 1988; Lansky, et al., 1983; Lowenthal & Lowenthal, 1995; Mayes, et al., 1996; Sexson & Madan-Swain 1995; Shapiro & Dinges, 1995; Stoff et al., 1989; Whitehouse et al., 1989). As Stehbens, et al., (1983) noted, children with cancer were four times more likely to be absent than healthy children; and hemophiliacs were twice as likely to be absent than healthy children. Parcel (1979) reported that children with asthma missed 8.4 percent of the days in a school year, whereas children without asthma missed only 5.9 percent. Children and adolescents with recurrent somatic complaints missed substantially more days than normal peers and was often the primary cause for prolonged absences (Greene & Thompson, 1984). Mowat & White (1985) also reported that children who skipped their initially scheduled medical examinations had a "two-fold risk" of absenteeism in later years.

Other physical ailments reported in the literature that affect school attendance in children and adolescents include rheumatic disease, juvenile rheumatoid arthritis, chronic illnesses, sickle cell anemia, coagulation disorders, and menstrual pain (Celano & Geller, 1993; Fergusson et al., 1986; Kvist, 1988; Lansky, et al., 1983; Mayes, et al., 1996; Majer & Joy, 1993; Nettles, 1994; Sexson & Madam-Swain, 1995;
Shapiro & Dinges, 1995; Stoff et al., 1989; Teperi & Rimpela, 1989; Weiss & Hermelin, 1986; Weitzman et al., 1986; Whitehouse et al., 1986). Furthermore, there are state and national policies that regulate the school attendance of children with AIDS (Fulton et al., 1987; Katsiyannis, 1992). Katsiyannis (1992) reported that some state policies were developed to accommodate children with AIDS into regular classrooms.

Mental and psychological disorders such as school phobia, generalized neurotic disorders, psychological difficulties, psychiatric disturbances, anxiety disorders, separation anxiety disorders and Tourette's syndrome also have a significant influence on school attendance in children (Berg, 1985; Blagg & Yule, 1984; Bool, et al., 1990; Burke & Silverman, 1987; Hagopian & Slifer, 1993; Honjo et al., 1992; Koizumi, 1988; Last & Strauss, 1990; Matsumoto et al., 1991; Plapp, 1990; Weitzman et al., 1986). Children who suffer from school phobias and anxiety-based school refusals have, in general, poorer school attendance patterns than those of their normal peers (Bool, et al., 1990; Honjo et al., 1992; Last & Strauss, 1990; Paige, 1993; Southworth, 1992).

**Child's personality factors.** Certain personality traits have been found to influence a child's school attendance. Southworth (1992) discovered that children with low self-esteem or who were introverted, irritable, and hard to get
along with had poorer attendance than children in the control groups. Similarly, Last & Strauss (1990) found that children with introverted personalities are more likely to be absent as compared to more extroverted children. It is apparent that the personality make-up of children can have a significant effect on their school attendance.

Children with disabilities. Attendance problems have also been detected among children with disabilities. Disabilities that have been reported in the literature as having an influence on school attendance include: Learning Disabilities (LD students) (Buchanan & Scobie, 1988; Kortering, et al., 1992; Litch, et al., 1991; Margalit & Raviv, 1984; Polisstok, 1987; Sullivan & McDaniel, 1983; Waldron, 1985); Emotional Disabilities (ED students) (Hagborg, 1989); behavioral disorders (Skiba & Raison, 1990; Polisstok, 1987); autism, mental retardation, pervasive developmental disorder, and non-autistic mental retardation (Kurita, 1991); mild to moderate physically handicapped (Blackorby, Edgar, & Kortering, 1991; Hess, Rosenberg, & Levy, 1990); and hearing impairment. According to the U.S. Bureau of the Census (1995) disabled youths had a 14.6 percent dropout rate as compared to the 11.8 percent dropout rate of non-disabled youths.

Teenage pregnancy and mothers. Another group of individuals who have problems with school attendance is
teenage mothers and pregnant teenagers (Leadbeater, 1996; McSparrin, 1993; Seitz & Apfel, 1994). Duckenfield (1997) reported that of all females who dropout or leave school, 40 percent were due to pregnancy.

Minority children. Attendance problems are also found among minority children. African-American students have been reported to have problems with school attendance and completion (Garibaldi & Bartley, 1988; Grant, 1973; Wright, 1991). Attendance problems are also detected among the Navajo and American-Mexican children (Boloz, & Lincoln, 1983; Boloz & Varrati, 1983; Hess & D'Amato, 1996).

It is reported that the percentage of TUSD minority students who dropped out during the 1996-1997 school year is as follow: Hispanics - 8.33 %, Native American - 7.46%, African-American - 5.56, and Asians - 3.17. Except for the Asians, all other minority drop out rates are higher than Anglos whose 96-97 school year drop out percentage is 4.5. (Bustamante, 1998).

Other child factors. Children who had pre-school or daycare experiences prior to entering public schools had better school attendance than children without these experiences (Warash & Markstrom-Adams, 1995). Rayner and Riding (1996) in a study looking at students who were school refusers, found that these students' learning styles were
skewed towards the Wholist end of the Wholist-Analytic learning style dimension.

Drug Factors

Drug factors refer to how drug use affect school attendance. The Department of Justice (Washington, D.C., 1994) reported that juveniles testing positive for marijuana and cocaine use exhibited poorer patterns of school attendance than juveniles who did not use drugs. McGarvey, Canterbury, Cohn, and Clavet (1996) found that adolescents who were inhalant users had school attendance problems and are likely to use other drugs as well.

Of the forty-five life factors that are associated with at-risk children, children who are at a much greater risk of failing in school and life, drug use and engagement in substance abuse ranked second on the list (Watkins, et al., 1994). The item ranked number one on the list was attempted suicide.

Hypotheses of the Study

From the school records of 3rd grade students, nine predictor measures could be obtained; the student's gender, ethnicity, number of parents at home and their employment status, number of siblings, school transfers (i.e. residency changes), residence address, distance between the student's home and school, and scholastic grade. Six schools were selected from the Tucson Unified School District (TUSD) as
participants in providing student's school record information. These schools were selected based on a representation of the various social economic status levels within the school district: two middle class schools, two working class schools, and two desegregated schools. Four characteristics of the schools were identified based on TUSD profiles of the schools (TUSD Profiles/Directions Bulletin, 1996-1997), (1) desegregated/segregated, (2) level of parental involvement, (3) having or lacking social programs to aid socially-disadvantaged children, and (4) general academic achievement of the school's students. It should be noted here that the best measure of SES of the students' families was the school they attended. Because no direct measure of average income of the student's parents could be obtained, the schools selected provided the best guess as to SES of their student populations. Based on the measures obtained, several hypotheses were generated as to the causal effects of these variables on school attendance patterns.

It was hypothesized that two latent variables or factors would emerge that characterize the students' families and schools they attend. These factors (family and school) were hypothesized to reflect the varying social circumstances of the student population: whether from socially-advantaged or disadvantaged families and schools. Socially-advantaged families and schools were expected to reflect the white middle class while disadvantaged families and schools to
reflect working class and minorities. Families coming from advantaged circumstances were hypothesized to be white, come from two parent-two income homes, have fewer offspring, move residencies less, and live closer to the school their children attend. Families coming from disadvantaged circumstances were hypothesized to be minority, single parent, single income homes with more offspring, more residency changes, and living further from the school their children attend.

Socially-advantaged family and school circumstances were hypothesized to reduce the number of all school absences. As predicted from the literature, children from economically and socially-disadvantaged homes were hypothesized to have more school absences (Fergusson et al., 1986; Galenson, 1997; Rafferty, 1995; Shaver & Dornbusch, 1993; Warash & Markstrom-Adams, 1995).

The ideal relationship between the family and school factor would be a direct causal relationship of coming from a socially-advantaged home and attending a socially-advantaged school. Thus, the family factor would directly relate to the school factor. However in this study, such an ideal was not expected to be achieved because the measure of income was based on employment status of the parents and not a measure of average household income. The "number of incomes" variable was anticipated to act incongruously within the model. For this reason, it was hypothesized that instead of
a direct link between the factors of family and school, each family variable would independently affect the school factor. Being white and coming from a two parent home would increase the likelihood of attending a socially-advantaged school. The number of incomes, however, is hypothesized to negatively related to the school factor, since employed parents have less time to be involved in their children's schools. Because the number of parents and being white are anticipated to be positively correlated to the school factor and number of incomes to be negatively correlated, no direct effect of the family factor to the school factor was anticipated.

Several of the family measures were also anticipated to have direct affects on the types of absences. Children from one income homes were hypothesized to have more personal absences (number of family trips and other personal reasons for taking a child out of school). If both parents are employed, the likelihood of both parent getting time off together during the school year is small, and most likely such dually employed parents plan their vacations when their children are out of school, during the summer or holidays. Homes with a single income are more likely to take vacations or trips during the school year when the employed parent is off, particularly in a single parent homes where the parent wants to spend time with their children, whenever they have time off. Residency changes were hypothesized to directly increase personal absences as well. Due to the time it takes
to transfer to a new school, parents may not want to drive their child across town to attend his or her old school.

Segregated schools were hypothesized to have more personal absences. It may be that these schools that are formed primarily by socially advantaged families that are financially more able to afford to take more vacations. Furthermore, these very same families may be more inclined to observe more non-Christian holidays which are not observed by the school district. Because the lacking school social programs equated with School 1, and School 1 had the highest percentage of two income homes, it was expected that the social programs contrast and number of incomes would be correlated, however no directionality is implied.
METHOD

Subjects

The 1996-1997 school records of 421 third grade students from six elementary schools from the Tucson Unified School District (TUSD), Tucson, Arizona, were reviewed for this study. Students were composed of 202 males and 219 females. Ethnic composition of the group reflected the general composition of this Southwestern community with 64% European-American, 27% Hispanic-American, 5% African-American, 3% Asian-American, and 1% Native American students. Demographic distribution of the family variables of the sampled group by school is presented in Table 1.

Table 1
Description of Student Sample Characteristics by School for 1996-1997 School Year

<table>
<thead>
<tr>
<th>School</th>
<th>Minority</th>
<th>% 2 parents</th>
<th>% 2 incomes</th>
<th>Sample Size&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total Students&lt;sup&gt;b&lt;/sup&gt;</th>
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<tbody>
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<td>17.0</td>
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<tr>
<td>% 2 parents</td>
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</table>

<sup>a</sup>Sample of third graders (TUSD Profiles Bulletin 1996-1997)

<sup>b</sup>Number of students enrolled in the school
Procedures

Selection of Schools

TUSD is located in the central region of the Tucson metropolitan area. This area is composed primarily of white middle and working class neighborhoods. School districts serving the wealthiest areas for the Tucson metropolitan area tend to exist outside this central Tucson region. There are, however, several neighborhoods within TUSD that can be characterized as upper middle class with residents characterized by professional occupations. TUSD serves several working class neighborhood and fosters several desegregated schools.

For this study, six elementary schools were selected to represent a cross-section of the subject population comprising the TUSD region. In order to achieve a representative population of minorities within the sample, two desegregated elementary schools were selected, Schools 3 and 5 (see Table 1 for demographics). It should be noted that desegregated schools receive more money per student than segregated schools. For this reason, these schools are able to provide more student-assistance programs and hire more full-time staff, such as school counselors. Next, two schools were selected from working class neighborhoods, Schools 4 and 6. Because these neighborhoods tended to be working class, the percentage of minority students was
closest to the Arizona average of 30 percent (Table 1). Lastly, two schools were selected from two middle to upper middle class neighborhoods, Schools 1 and 2. As expected, these schools were overwhelmingly white and had the highest percentages of two parent homes (Table 1). Interestingly, these two schools were split as to number of two income homes. School 1, represented by primarily professional occupations had the highest percentage of two income homes from the sample. School 2, also represented by professional occupations had the lowest percentage of two income homes from the sample. This dichotomy between schools 1 and 2 in number of incomes depicts the weakest of this measure in characterizing a family's social economic status (SES; see Data limitations section for fuller discussion).

Table 2
Defining School Characteristics for Each School

<table>
<thead>
<tr>
<th>School</th>
<th>Desegregated</th>
<th>Parental Involvement</th>
<th>Before &amp; After School Programs</th>
<th>ITBS[^]</th>
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<tr>
<td>5</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

[^]High Parental Involvement in PTA and/or Parent Led Programs
[^]Before and After School Programs for Disadvantaged Students
[^]High Achievement on Iowa Test of Basic Skills
The following is a list of school achievements, special programs and community involvement as reported in the 1996-1997 TUSD Profiles/Directions Pamphlet.

School 1's student achievements and accomplishments were: high Iowa Test of Basic Skills (ITBS) scores, district poetry winners, the University of Arizona Science Fair winner, the Dr. Martin Luther King, Jr. Essay Contest winner, and a community service participation awards. Special programs School 1 offered to its students were: a full-day kindergarten, music classes, a student computer lab, Spanish instruction, a Substance Abuse Prevention Program, special education programs, a Literacy Assistance Program, Chess Hour, Computer Club, and after-school Arts & Crafts classes; Additionally, School 1 reported a high level of PTA participation and support.

School 2's student achievements and accomplishments were: high ITBS scores, a Exxon Math Project participant, and the 1995 City Track Champion. Special programs School 2 offered to its students were: full-day and extended-day kindergartens; Integrated Thematic Instructional programs, comprehensive community education programs, before-and-after school and summer enrichment programs, music classes, and Spanish instruction. School 2 reported 95% high client satisfaction surveys and extensive parent involvement in the schools programs.
School 3, a desegregated school, reported that its student achievements and accomplishments were: State Department poetry winners, Public School Week essay winners, Elk's Lodge regional and state winners in "Just Say No to Drugs Art Contest, Southern Region Science Fair winners, and participants in the annual Mariachi Parade. Special programs School 3 offered to its students were: Literature-based language arts program, a school-wide process writing program, a student computer lab, full-time art teacher, full-time librarian, full-time counselor, SAAC Program (Student Attending After School Classes) paid by parents, computer classes, and Spanish instruction. School 3 reported a very active PTA and strong parent involvement.

School 4 reported no outstanding student achievements or accomplishments. Special programs School 4 offered to its students were: full-day kindergarten, before and after school daycare, sixth grade classes, a student computer lab, and a substance abuse program.

School 5, a desegregated school, reported no outstanding student achievements or accomplishments. Special programs School 5 offered to its students were: sixth grade classes, a full-day kindergarten; full-time multicultural arts teacher and school counselor, preschool, before-and-after school child care, bilingual classes, sports teams, a breakfast program (providing disadvantaged students a breakfast meal), Exceptional Education Breakthru programs, a
basic skills teacher. School 5 did not report any parental involvement.

School 6's student achievements and accomplishments were: the 1990 Mission Success Student Achievement Award in reading. School 6 was also a recipient of the Library Power grant, EEF Principal grant recipient, and the Parent Mini University grant.

Special programs School 6 offered to its students were: a full-day kindergarten; a substance abuse prevention program, a Gifted and Talented Education (GATE) program; computer instruction, a breakfast program, special education classes, a Literary Assistance Program; a preschool program for children with disabilities, after-school daycare, a Drama Club, a Chess Club, an after-school Study Club, a collaborative planning library. School 6 reports a highly active PTA and outstanding school volunteerism in Family Curriculum Nights, a Parent Reading Club, and a Parents on Patrol program.

Review of Student School Records

These data were collected from the 1996-1997 school year permanent and registration records of the sample population. Principal and district consent to review the students' records was obtained for all data presented. Registration records were those information provided by the parents to register their student(s) into school for the 1996-1997 school year. Information obtained from the registration
records were the student's: number of parents (guardians) in residence with the student, parents' occupation(s), the family's ethnic origins, number of siblings in residence with the student, the student's gender, and address of the student's residence. Obtained from the student's permanent records were the student's academic performance, school transfers, and number of school absences. School absences were procured by the schools' Attendance Clerks for each student throughout the school year.

Measures

The measures used in the present analysis are described below:

(a) School Absences: Information regarding the student's school absences were obtained by the Attendance Clerk from each school. School attendance for this present study was defined as the physical presence of the student in school during the days required by the school district. Tardiness was not considered an absence unless the tardiness went a half day; it was then counted as a half day absence. A school day consisted of six and half hours. The total days in the school calendar year a student was required to attend public school in the state of Arizona was 175 days. A student's total yearly absences is the number of required school days that the student was not physically in school minus the total days required by the school district in a school calendar year.
When absences did occur, excused or unexcused, the present study evaluated the reason causing the student to be absence. Classification of the reasons for the student's absences was based on information provided by the parent(s) who reported the nature of their child's absence. The TUSD guidelines for Classification of Reasons for school absences are provided in Table 3. Based on these guidelines there are two general types of absences: excused and unexcused. Two categories of Excused absences were delineated based on the TUSD's Classifications of Reasons: (1) Health absences were any absence due to illness or illness related activities (doctor's appointment) of the student (TUSD codes C, F, K, L, M, N, O, Q, V, W, X, Y, Z). (2) Personal absences were any absences due to personal reasons unrelated to the student's health, such as planned family trips (code T), court appearances (code J), family emergencies (code E), death in the family (code G), religious holidays unobserved by the school district (code R). Based on the TUSD guidelines, unexcused absences were any absences unreported by the parents or due to the student's suspension (codes S, U).

The means and standard deviations for each type of school absence reported for each of the six schools are provided in Table 4.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Alternative Institute, In house Suspension, Time-out</td>
<td>Not Absent</td>
</tr>
<tr>
<td>B</td>
<td>School Business</td>
<td>Not Absent</td>
</tr>
<tr>
<td>C</td>
<td>Cold (sore throat, runny nose, cough, congestion)</td>
<td>Excused</td>
</tr>
<tr>
<td>D</td>
<td>Delete from Records</td>
<td>Not Absent</td>
</tr>
<tr>
<td>E</td>
<td>Family Emergency or Illness</td>
<td>Excused</td>
</tr>
<tr>
<td>F</td>
<td>Flu (vomiting, diarrhea, fever)</td>
<td>Excused</td>
</tr>
<tr>
<td>G</td>
<td>Death in Family</td>
<td>Excused</td>
</tr>
<tr>
<td>H</td>
<td>Hold in Pending File</td>
<td>Pending</td>
</tr>
<tr>
<td>J</td>
<td>Court Appearance</td>
<td>Excused</td>
</tr>
<tr>
<td>K</td>
<td>Pink Eye</td>
<td>Excused</td>
</tr>
<tr>
<td>L</td>
<td>Head Lice</td>
<td>Excused</td>
</tr>
<tr>
<td>M</td>
<td>Medical Appointment</td>
<td>Excused</td>
</tr>
<tr>
<td>N</td>
<td>Non-Contagious Illness (broken bones, asthma)</td>
<td>Excused</td>
</tr>
<tr>
<td>O</td>
<td>Other Widespread disease (contagious disease not listed)</td>
<td>Excused</td>
</tr>
<tr>
<td>P</td>
<td>Pending</td>
<td>Pending</td>
</tr>
<tr>
<td>Q</td>
<td>Chronic Illness Absence (must be certified)</td>
<td>Excused</td>
</tr>
<tr>
<td>R</td>
<td>Religious Holiday</td>
<td>Excused</td>
</tr>
<tr>
<td>S</td>
<td>Suspended</td>
<td>Unexcused</td>
</tr>
<tr>
<td>T</td>
<td>Planned Trip, Personal Reasons</td>
<td>Excused</td>
</tr>
<tr>
<td>U</td>
<td>Unexcused</td>
<td>Unexcused</td>
</tr>
<tr>
<td>V</td>
<td>Mumps</td>
<td>Excused</td>
</tr>
<tr>
<td>W</td>
<td>Measles</td>
<td>Excused</td>
</tr>
<tr>
<td>X</td>
<td>Chicken pox</td>
<td>Excused</td>
</tr>
<tr>
<td>Y</td>
<td>Rubella</td>
<td>Excused</td>
</tr>
<tr>
<td>Z</td>
<td>Strep Throat</td>
<td>Excused</td>
</tr>
</tbody>
</table>
Table 4

Means and Standard Deviations for Each Category of Absences by School

<table>
<thead>
<tr>
<th>School</th>
<th>Health Mean</th>
<th>Health SD</th>
<th>Personal Mean</th>
<th>Personal SD</th>
<th>Unexcused Mean</th>
<th>Unexcused SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.97</td>
<td>5.59</td>
<td>2.03</td>
<td>2.51</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4.86</td>
<td>4.46</td>
<td>1.81</td>
<td>2.37</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>6.77</td>
<td>7.30</td>
<td>1.05</td>
<td>1.46</td>
<td>0.05</td>
<td>0.23</td>
</tr>
<tr>
<td>4</td>
<td>7.56</td>
<td>9.74</td>
<td>2.32</td>
<td>3.11</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>7.21</td>
<td>5.85</td>
<td>1.26</td>
<td>1.89</td>
<td>0.54</td>
<td>1.74</td>
</tr>
<tr>
<td>6</td>
<td>7.21</td>
<td>6.51</td>
<td>2.63</td>
<td>4.44</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Wide variances exist between the schools on types of absences, particularly personal absences where Schools 3 and 5 reported maximums of five and seven, while Schools 4 and 6 reported maximums of 25 and 31. The most common absences reported by parents within the sample were health absences. Only the two desegregated Schools 3 and 5 reported any unexcused absences.

(b) Family Circumstances: The following measures were used to describe the student's family and social situation.

(i) Family composition: This item was measured as to whether the student was living in a one or two parent family. Parents were defined as any adult caretakers, whether they were foster parents, legal guardians,
adoptive parents, or biological parents, with whom the student lived.

(ii) Family income status: This was measured as the number of family incomes the parents provided. No specification as to how much the parents, average income was available in the students records, only whether the parents were employed.

(iii) Family ethnicity: This item was based on the ethnic classification reported by the parent(s) on the student's registration records. Classification of ethnicity was based on five TUSD categories: (1) White, (2) African-American, (3) Hispanic-American, (4) Native American, and (5) Asian-American.

(iv) Family size: This item was measured as the number of siblings living with the student at the same residence.

(v) School transfers: This item was measured as the number of transfers to different schools that a student had made during the school year.

(vi) Residence-to-school distance: This item was a measure as to how far a student had to travel in order to get to school. Assumedly, students that live closer to the school should have less difficulty getting to school for any reason.

(c) Measures of Student Aptitude and Gender: Ratings of the student's academic performance in terms of reading,
mathematics, spelling, and written expression were based on the teachers' overall ratings of the students. The grading system followed the rating conventions of the school district: E = excellent, S = satisfactory, N = needs improving, and I = improving. The students' genders were included based on possible effects related to general differential biological makeup of boys and girls.

(d) School Characteristics: The effects of the school environment on school attendance were based on the four school characteristics presented in Table 2: (1) segregated vs. desegregated, (2) parental involvement, (3) before and after school social programs, and (4) academic achievement based on ITBS scores.

Data Management

The data for each of the above measures were coded and quantified for analysis as described below. Contrast coding was done following the specifications provided in Cohen & Cohen (1983).

(a) Gender: The genders of the students were quantified by assigning males a value of zero, and females a value of one (males = 0; females = 1).

(b) Parents: The number of parents (adult caretakers) living in residence with the student ranged from the value of one to two. A value of one being a single parent home and a value of two being a two parent home.
(c) **Income status:** The income status of the student's family was operationally defined as the number of incomes per family, since no other measures of social economic status (SES) were available. Families without reported employment were presumed to have a single income, since welfare was counted as an income. The values of parental income ranged from one to two.

(d) **Ethnicity:** Because the levels of non-Hispanic minorities was too small to make ethnic discriminations, this item was converted in a white versus nonwhite dummy variable. Because it was hypothesized that white families and segregated white schools resulted in fewer student absences, white students were assigned a value of one and minority students a value of zero (nonwhite = 0; white = 1).

(e) **Siblings:** The number of siblings living in residence with the student was enumerated from the student's records. These values ranged from zero to seven for the sample.

(f) **School transfers:** The number of school transfers a student had during the school year were quantified. Students that did not transfer to a different school but did change residence could not be accounted for. These values ranged from zero to two.

(g) **Distance:** Distance was operationally defined as the distance in miles between the student's residence and
the school as measured on a street atlas of the Tucson metropolitan area (Phoenix Mapping Service, 1996). A half mile radius was drawn around the school's location on the street atlas measured by the atlas' mileage scale. Students with addresses within the half mile radius from the school were determined to be near to the school and assigned a value of zero. Students living outside the half mile radius were determined to be far from the school and assigned a value of one.

(h) Grades: Based on the TUSD grading system for elementary students (pp. 62), students with a grade of N (needs improving) or I (improving) were considered as having poor aptitude and were assigned a value of zero. Students with a grade of E (excellent) or S (satisfactory) were considered as having good aptitude and were assigned a value of one.

(i) School characteristics: The schools for this study were selected based on a cross-section of Tucson's social economic class continuum presented in Figure 1. The four school characteristics (presented in Table 2) were contrast coded to reflect the hypothesized directionality of this social class continuum scale (page 66).
FIGURE 1. Social Economic Status Continuum of Characteristics

SOCIAL ECONOMIC STATUS (SES) CHARACTERISTICS

INCREASING SES

- Increasingly white
- More two parent homes
- Increasingly segregated
- More parental Involvement
- Fewer social programs
- Increasing academic achievement
- Fewer behavioral problems
- Better school attendance

DECREASING SES

- Increasingly minority
- More single parent homes
- Increasingly desegregated
- Less parental Involvement
- More social programs
- Decreasing academic achievement
- More behavioral problems
- Poorer school attendance
For this reason, the school characteristics, as reported in the 1996-1997 TUSD Profiles/Directions Pamphlet and presented in Table 2, of being segregated, having high parental involvement, lacking before and after school programs, and having high achievement were coded in the positive direction and the opposite coded in the negative. This coding scheme allowed for maintaining the directionality of the class continuum. Each of the four characteristics for the six schools were contrast coded as follows on Table 5.

Table 5
Contrast Coding for School Characteristics

<table>
<thead>
<tr>
<th>School</th>
<th>Deseg/Segregated</th>
<th>Parental Involvement</th>
<th>Before &amp; After School Programs</th>
<th>High/Low ITBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+1</td>
<td>+1</td>
<td>+5</td>
<td>+2</td>
</tr>
<tr>
<td>2</td>
<td>+1</td>
<td>+1</td>
<td>-1</td>
<td>+2</td>
</tr>
<tr>
<td>3</td>
<td>-2</td>
<td>+1</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>4</td>
<td>+1</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>5</td>
<td>-2</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>6</td>
<td>+1</td>
<td>+1</td>
<td>-1</td>
<td>-1</td>
</tr>
</tbody>
</table>

| TOTALS | 0               | 0                    | 0                             | 0            |

It is important to note at this point the effects of such a small sample size of schools (N = 6). Whereas there were 421 subjects sampled, only six schools were sampled for the cross-section of these economic class constraints. This means that idiosyncratic characteristics of the schools may
heavily impact the analyses of these data, causing general trends in schools of varying SES to be lost. It is assumed that a larger sample size (unavailable for this study) would average out these affects.

Data Limitations

Because these data were obtained from the permanent and registration records of the student sample, there were several limitations as to what information could be acquired. First of all, the ethnicity of the student and student’s family, as reported by the parent(s), had to fit one of the five TUSD ethnicity criteria as stated above (pp. 61). Based on these criteria, families and children in the sample were not allowed to be bi-racial. Mixed ethnicity of the parents could not be assessed. This was also a reason for why the ethnicity variable was dichotomized into white/nonwhite contrast, allowing for the pooling of general minority effects. Second, the number of incomes was the best measure that could be obtained as a measure of social economic status (other than the general characterization of the school and its neighborhood). Number of incomes may prove to be a weak measure of SES. There is an obvious correlation between number of incomes and increased average income of a family, however this does not necessarily increase SES. For example, the two incomes of a construction worker and a waitress will not be anywhere close to the single income of a medical doctor or software engineer. In addition, a second problem
is presented by a measure of number of incomes. Dual employment of two parents may result in less parental involvement with their children and their children's schools. It was anticipated that the measure of number of incomes would have both positive and negative effects within the model, such that number of incomes would positively affect family income, but negatively affect school involvement.

In addition to limitations with ethnicity and number of incomes, the family size variable also had limitations. As part of the family factor, it was hypothesized that lower SES families would be larger, however with the age group of the subject population, it is highly likely that the full family size may not be represented. If the subject child is the first or second child of large family, it is likely that several siblings are probably not born yet. If the subject population were in high school, the likelihood of the family size being fully represented in the data is greater, since 15 to 18 years is more likely have involved more sibling births, whereas the 8 to 9 years age group of this sample may not.

Statistical Analysis

These data were subjected to a multivariate causal analysis using structural equation modeling implemented the EQS statistical software program (Bentler, 1989). Due to hypothesized multicollinearity among the predictors (Cohen & Cohen, 1983), common factors were constructed for two hypothesized constructs relating to the proposed causes of
school absences: (1) family and (2) school. A path analysis was done to model the hypothesized direct and indirect effects of these two factors and their predictors on the three categories of school absences: health, personal, and unexcused. Additional, hypotheses relating to prespecified direct affects of number of incomes, number of school transfers (moves) and segregated schools on personal absences were also tested.

All confirmatory factor modeling and structural equations modeling was performed by EQS. Structural equations modeling provided multivariate causal analysis of the structural relations between the family and school factors and the categories of absences. A hierarchical nested modeling approach was utilized to evaluate the structural models for this study. First, an "inclusive" model was constructed from all the hypothesized pathways in this study, presented in the hypotheses section: (1) the direct effects of the family and school factors on school absences, (2) the hypothesized direct effects of the family predictors on the school factor and (3) the hypothesized direct effects of school transfers, number of incomes, and segregation on personal absences. Finally, all nonsignificant effects were eliminated and a final, or "restricted", causal model was performed.
RESULTS

Rates of Absenteeism

Table 6 shows the distribution of the number of school days missed during the 1996-1997 school year by the group of third graders sampled. As anticipated, the majority of students (71%) missed only 10 or fewer days throughout the school year. Only a small percentage of students missed over 20 days of school (6.9%).

Table 6
Rates of Absenteeism for the Sample

<table>
<thead>
<tr>
<th>Number of Days Absent from School</th>
<th>N</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>17</td>
<td>4.0</td>
</tr>
<tr>
<td>1 - 5</td>
<td>165</td>
<td>39.2</td>
</tr>
<tr>
<td>6 - 10</td>
<td>117</td>
<td>27.8</td>
</tr>
<tr>
<td>11 - 15</td>
<td>66</td>
<td>15.7</td>
</tr>
<tr>
<td>16 - 20</td>
<td>27</td>
<td>6.4</td>
</tr>
<tr>
<td>21 - 25</td>
<td>11</td>
<td>2.6</td>
</tr>
<tr>
<td>26 - 30</td>
<td>8</td>
<td>1.9</td>
</tr>
<tr>
<td>31 +</td>
<td>10</td>
<td>2.4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>421</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Hierarchically Nested Models

As expected, the results of the hierarchical general linear models revealed that the child predictor variables,
gender and grade, had no affect on any of the school absences. Unexpectedly, it was also found that distance from school had no impact on school absences in this sample. The results for gender, grade and distance are presented on Table 7. (The entire results table for these general linear models can be found in Appendix I)

| Table 7 |
| Hierarchical General Linear Modeling Results of Gender, Grade and Distance on School Absences |

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>Explanatory Variables</th>
<th>df</th>
<th>r</th>
<th>F-ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1</td>
<td>0.05</td>
<td>1.20</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>1</td>
<td>0.08</td>
<td>2.82</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>1</td>
<td>0.03</td>
<td>0.35</td>
<td>n.s.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERSONAL</th>
<th>Explanatory Variables</th>
<th>df</th>
<th>r</th>
<th>F-ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1</td>
<td>0.05</td>
<td>1.22</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>1</td>
<td>0.01</td>
<td>0.08</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>1</td>
<td>0.06</td>
<td>1.40</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNEXCUSED</th>
<th>Explanatory Variables</th>
<th>df</th>
<th>r</th>
<th>F-ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1</td>
<td>0.07</td>
<td>2.56</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>1</td>
<td>0.08</td>
<td>2.65</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
<td>n.s.</td>
<td></td>
</tr>
</tbody>
</table>
Although, given causal priority over all other variables, gender remained nonsignificant for all three categories of absences, as did grade and distance. The results indicated that gender was not related to differential attendance. In addition, school attendance was not related to the students' grades (academic performances). Based on the findings of other studies it was speculated that student performance may affect their attendance, such that poor aptitude students might be more likely to be absence than good aptitude students. As anticipated, aptitude was not affecting the school attendance patterns of these elementary student. Since academic performance is not highly stressed in elementary school, as it is not likely to lead to a child's avoidance of school. All the other independent variables were found to be significantly related to one or two types of absences. Gender, grade, and distance were removed from subsequent factor analytic and structural equations modeling.

Figures 2 and 3 display the "inclusive" and "restricted" factor analytic structural equations models, respectively (pp. 73 & 74). The inclusive model is the initial model with all the causal pathways originally hypothesized; the restricted model is the final model with all nonsignificant causal pathways eliminated. In Figure 2, the statistically significant causal pathways are represented as heavy arrows and the nonsignificant causal pathways are represented as thin arrows. In Figure 3, the factor loadings and the
FIGURE 2. "Inclusive" Factor Analytic Structural Equations Model for the Effects of Family and School on School Attendance in Third Graders

- Ethnicity
- Number of Parents
- Number of Incomes
- Number of Siblings
- School Transfers
- Segregated
- ITBS
- Parental Involvement
- Lacks Social Programs

Family

School

- Health Absences
- Personal Absences
- Unexcused Absences
FIGURE 3. "Restricted Factor Analytic Structural Equations Model for the Effects of Family and School on School Attendance in Third Graders

Ethnicity → .27*
Number of Parents → .83* .47*
Number of Incomes → .26* .28* .19*
Segregated → .57*
ITBS → .93* .58* .59*
Parental Involvement →
Lacks Social Programs →

Family

School

Health Absences → .17*
Personal Absences →
Unexcused Absences → .14* .11*

*p < .05
structural pathways, estimated by Maximum Likelihood, are expressed as standardized regression coefficients (β-weights). Table 8 provides the statistical and practical indices of fit for the two factor analytic structural equations models. Due to skewedness of the data (most students were good attendees), ROBUST statistics, model fitting statistics not affected by lack of normalcy, were also determined (Bentler, 1989). The chi-squared values for both models were statistically significant, indicating that the models do not perfectly predict all the covariances between the predictor variables and the criterion variables. The five practical indices of fit (AIC, NFI, NNFI, CFI, and Robust CFI) indicate that the "restricted" model is a substantially better fit of the covariances than is the "inclusive" model. The AIC is Akaike's information criterion. The AIC fit index takes into account the fit of the implied model and the number of parameters estimated. The smaller the AIC index, the better the fit of the implied model. The NFI is the Bentler-Bonett Normed Fit Index, the NNFI is the Bentler-Bonett Nonnormed Fit Index, and the CFI is the Comparative Fit Index. These fit indices compare the implied model on a continuum of models, from a perfect fit, "saturated model," to some baseline "null model." The null model is some arbitrary model in which, for example, all the correlations are zero. Thus the models are compared on a scale from zero to one, one being a perfect fit to the
observed data. A proposed model with indices of fit exceeding .90 are considered acceptable for practical purposes (Bentler & Bonnet 1980).

Table 8
Statistical and Practical Indices of Fit for Nested Factor Analytic Structural Equation Models

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DF</th>
<th>( \text{CHI}^2 )</th>
<th>AIC</th>
<th>.NFI</th>
<th>.NNFI</th>
<th>.CFI</th>
<th>.CFI (ROBUST)</th>
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<td>.952</td>
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<td>-9.81</td>
<td>.911</td>
<td>.929</td>
<td>.958</td>
<td>.945</td>
</tr>
</tbody>
</table>

\( **(p < 0.001) \)

The "restricted" model, with all nonsignificant pathways removed, performed better in the NFI, NNFI, CFI, and ROBUST CFI indices of fit than the "inclusive" model. The AIC fit index was larger for the "restricted" than for the "inclusive" indicating a better fit for the "inclusive" model. However, the other indices indicate a better fit for the "restricted" model. Based on the principle of parsimony, the "restricted" model with fewer pathways is to be preferred.

The Measurement Model

The family factor was confirmed for only ethnicity, number of parents, and number of incomes predictors. Contrary to expectation, siblings and number of residency
changes (moves) were not related to the family factor as predictors of family circumstances. All the factor loadings for ethnicity, number of parents, and number of incomes were statistically significant. As anticipated, socially-advantaged children came primarily from white, two parent, two income families, whereas socially-disadvantaged children came primarily from single parent, single income minority families.

The school factor was confirmed for all of four characteristics of school. All the school characteristics factor loadings were statistically significant for the school factor. The school factor confirmed that socially-advantaged schools were primarily segregated. These schools also ranked higher in parental involvement and in student scholastic aptitude scores (ITBS). As anticipated, socially-advantaged schools lacked social programs encouraging school attendance. These social programs are no doubt initiated by the school district based on the school's past absenteeism rates. Socially-advantaged schools would not be targeted for such socials, since absenteeism rates are low and the programs would be poorly utilized. As its inverse, socially-disadvantaged schools were primarily desegregated and ranked lower in parental involvement and in student scholastic aptitude scores, in spite of greater funding provide to desegregated schools. It is not surprising that these schools have social programs to provide socially-
disadvantaged students and families with incentives to attend school. The ITBS scores predictor had a particularly high factor loading on the school factor. This characteristic equated with the two upper middle class schools of the sample, which were the only schools reporting high aptitude scores. These two schools were the upper level in terms of the social status of their areas and degree of segregation.

**The Structural Model**

As expected, both the Family Factor and the School Factor reduced the number of health-related and unexcused school absences. Socially-advantaged children by way of family and school circumstances were less likely to be absent from school for health-related reasons or to have unexcused absences. Disadvantaged children, children from minority, single parent, single income homes, on the other hand, were more likely to be absent from school for health reason and were more likely to skip school or to have unexcused absences. In fact all unexcused absences were obtained from the two desegregated schools. Contrary to expectations, neither factor explained the number of personal absences.

As expected, the school factor was directly affected by the number of parents, the number of incomes, and the ethnicity of the students' families. Socially-advantaged schools were made up of students coming from primarily white, two parent homes. Decreasing social-advantage corresponded
to increasing numbers of minority students and single parent homes. As predicted, the number of incomes acted contrary to its effects as a family factor predictor and was negatively related to socially-advantaged schools. In other words, high SES does not equate with number of employed parents, and families with an unemployed parent can participate more with their child's school and possible participate more in their child's education at home. For this reason, the family factor was not directly causal to the school factor, however the family predictor variables were. Again it is important to mention that the sampling of schools for this study only had an N = 6. Idiosyncratic characteristics of these schools may be effecting the pathways of this model. One such idiosyncratic pathway may be the relationship between the number of incomes and the lack of social programs. In contrasting the schools' characteristics, only School 1 lacked any social programs. School 1 also had the largest number of two income households (48%), which most likely explains the relationship between these two variables. However, it should not be completely ruled out as an important pathway. Many of the social programs offered by the other five schools were mediated by parent groups. Schools with a large number dually employed parents may in fact lack social programs simply because there is not enough parental support to maintain them.
**Health Absences**

The number of health absences was directly caused by family and school circumstances. Children from advantaged circumstances had significantly fewer health absences than children coming from disadvantaged circumstances. As described above, advantaged circumstances included being white, from a two parent home and attending a segregated school. Disadvantaged circumstances included being minority, from a single parent home and attending a desegregated school. Socially-disadvantaged children experience more health absences. There are two possible explanations for this. First, as described by may Attendance Clerks, health absences are the predominate excuse used by parents to explain their child's absence from school, when the child is not ill. Health absences are suspected to mask may unexcused absences, situations where the parents are unwilling or unable to have their child attend school. In fact, as the model indicates, a primary predictor for both unexcused and personal absences is the number of health absences. This appears to indicate a masked pattern of parental excuses for their child's absences. Second, it is possible that children coming from disadvantaged circumstances are more likely to encounter illness due to poor nutrition or poor supervision (resulting in injuries). It should be mentioned here that no information was obtained to characterize the student's
general health. Several of the students with high absenteeism may be severely ill. However, it seems unlikely that the disproportionate number of high absentee students coming from single parent minority homes are due to severe illnesses. There are, however, a multitude of speculative interpretations as to why single parents report more health absences. Does this mean that children from single parent homes were in general less healthy than children from two parent homes? This was possible, however, it seemed more likely that single parents were keeping or allowing their children to stay home for more minor health conditions than are two parent homes. Single parents may find it more difficult to strictly monitor their child's condition, especially if they are employed. Taking a sick child to the baby-sitter, may be easier than sending a sick child to school only to be called out of work to pick her up later in the day. In addition, it was probable that perhaps health absences were, in fact, masking school refusal or unexcused absences. Two parents present a more united front in enforcing school attendance in their children, whereas one parent may acquiesce to the child's non-compliance. Which may also explain why single parents report more health reasons for their child's absences

**Personal Absences**

Personal absences were however, directly effected by health absences as were unexcused absences. Personal
absences were directly effected by number of incomes as anticipated. In fact, segregated schools were directly causal to personal absences. However, socially-advantaged children were more likely to be absent from school for family trips or vacations taken during the school year, especially if they had only one employed parent. Other personal reasons for absences from these socially-advantaged children include death in the family, emergencies, and non-observant religious holidays.

Single income families were more likely to cause personal absences. Students with numerous health absences were also likely to have personal absences. Numerous health absences also predicted the likelihood of unexcused absences. The general outcome for personal absences was that single income families were more likely to keep their children out of school for personal reasons. One of the most common cited reasons for personal absences is a planned family trip. Single income families can vacation anytime the income provider has vacation time, whereas, dual income families must obtain vacation time from two employers, meaning long-term arrangements have to be made to vacation together with their children.

Unexcused Absences

Students from disadvantages families and schools were more likely to be absence from school without legitimate reasons. In fact, in the sample, only desegregated schools
reported any unexcused absences. Unexcused absences were also predicted by the number of health absences.

Summary of Results.

Socially-advantaged families were characterized by being white and having two employed parents. Socially-disadvantaged families were overwhelmingly minorities and headed by a single parent. As expected socially-advantaged students had fewer health and unexcused absences as compared to disadvantaged homes. The school factor was also characterized by social circumstances: middle class schools were primarily white, high achieving, with strong parental involvement and lacking social programs to promote attendance indirectly. As social class of the schools decreased the school became increasingly minority, low achieving, with less parental involvement and needing social programs to promote attendance. Again, the socially-advantaged circumstances of the school promoted better attendance, particularly fewer health and unexcused absences. Direct effects between the school factor and number of parents and ethnicity indicated that positive family social circumstances promoted positive school circumstances. However, a negative relationship between number of incomes and school indicated that middle class homes with single incomes promoted better school involvement by the parents. Personal absences, categorized as absences due to family trips, were more characteristic of segregated schools and single income families. White
families with single incomes take more vacations during the school year. Other possible reason for personal absences include non-observant holidays, family emergencies, and death in the family. Finally, students with numerous health absences are more likely to also have more personal and unexcused absences. The indications of this study suggest that different avenues need to be taken to promote the attendance of students from disadvantaged families and schools.
DISCUSSION

The results of this study confirm that socially-disadvantaged children continue to face familial and school barriers to their attendance, while children from socially-advantaged families are facilitated in their education by both their family and school environments. Particularly likely to be a member of a socially-disadvantaged family are minority children. In spite of social programs directed at socially-disadvantaged and minority children and their families, these children continue to fall behind in their school attendance. It is clear that the effects of family circumstances and characteristics are the primary cause for a child's school absences. Socially-disadvantaged children experience more health absences. There are two possible explanations for this. First, as described by may Attendance Clerks, health absences are the predominate excuse used by parents to explain their child's absence from school, when the child is not ill. Health absences are suspected to mask may unexcused absences, situations where the parents are unwilling or unable to have their child attend school. In fact, as the model indicates, a primary predictor for both unexcused and personal absences is the number of health absences. This appears to indicate a masked pattern of parental excuses for their child's absences. Second, children coming from disadvantaged circumstances are more
likely to encounter illness due to poor nutrition or poor supervision (resulting in injuries). It should be mentioned here that no information was obtained to characterize the student's general health. Several of the students with high absenteeism may be severely ill. However, it seems unlikely that the disproportionate number of high absentee students coming from single parent minority homes are due to severe illnesses. Many measures, such as average family income, parental education, general health and intelligence scores of the student, were unavailable for this study. The inclusion of this information in the students' records would undoubtedly have been valuable in increasing the explanatory power of the resulting causal model. The results of this study supported most of the author's expectations and the conclusions from other previous studies. Children from two parent homes are less likely to miss school (Featherstone et al., 1992). Similarly, children with two employed parents had better school attendance (Brown, 1993; Fergusson et al., 1986; Friedman, & Stamen, 1990; McNaughton, & Smith, 1993; Shaver, & Dornbusch, 1993; Utah State Office of Education, 1992). Lastly, certain schools tend to produce more absences in children.

The explanation for this rests with a few variables that were seen consistently in the present data collected. These variables include that the children who have more school absences tend to come from homes that are headed by single
parent homes and that most of these homes were headed by females. The incomes of these single parents tend to be lower and that there seems to be more children in these homes. Furthermore, these children tend to live further from the schools and that they seem to have more residence and school transfers during the school year. All these combined apparently put these children at a grave disadvantage that seem to affect their school attendance negatively.

The following examines each of these variables thoroughly.

Family Factor

Number of Parents

Why does coming from disadvantaged homes have a negative influence on children's school attendance? First of all, there is ample evidence that single-female-headed-households are one of poorest groups in America (U.S. Bureau of the Census, 1992). In fact, nearly half of the children who live in single-female-headed homes lives in poverty or close to poverty (Bane & Ellwood, 1989). Another study showed that women, whose job categories were as same as men, made less than men -- 51.2 to 73.4 percent less (US Bureau of the Census, 1991). Children come from homes with lower SES are more likely to drop out of school (Herrnstein & Murray, 1994).

Moreover, disadvantaged homes like these have only one parent, and generally homes with two parents are more likely
to have better organization, more parental resources thus they are more likely to get the children ready for school either the night before or in the morning. It is reported that when the family responsibility is almost solely that of one parent, the single parent is more fatigue, stressed, and has less energy and time to spent with the children (Beck, 1989). Getting children to school on time and consistently is especially difficult for single parents who work at non-traditional hours; which is more likely with these low income single parents who are probably holding jobs of a service nature (e.g., food services, convenient store clerks). These absences for the reasons mentioned above are often recorded as unexcused which is most likely to be committed by children from homes with one parent.

The other reported reason for absences from children living in these one-parent homes involves health. It is easy to make the connection that children from disadvantaged homes with low incomes are more likely not to get proper medical care. With proper medical care, common reported school illnesses such as cold, flu, head lice could probably be shortened or prevented.

Furthermore, these children from single-parent homes probably are not well supervised or monitored during their playing or interactions with each other or with the children in the neighborhood. In fact, one study reported that no supervised care is provided to 20% of school age children.
whose mothers work (U.S. Bureau of the Census, 1987). Other study reported nearly five to seven million 5 to 14 year old children who are so called "latchkey children" who receive none or very little adult supervised care once school is out (Simons & Bohen, 1982; U.S. Department of Labor, 1982). It is safe to assume that these inadequately supervised children are more like to get injured which can be reported as health reason for the school. In fact, one study reports that intermediate grade children had the highest number of accidents and injuries that result in school days lost (Taketa, 1984).

**Number of Incomes**

The number of incomes in the home correlated with absence for personal reasons such as planned trips, non-observant religious holidays, and/or death in the family. It may be that it is easier to plan a trip or a vacation with one parent working. It is also possible to assume that some of these single income parents who may work odd hours or days (e.g., weekends, holidays) need to spend time with their children and that these times may be during school hours and days. It may also be that the reason the child is missing school for personal reason is to spend time with his/her other not living-in-the-home parent. The data of the present study indicate that children from homes with just one income are more likely to miss school for personal reason.
Furthermore, the attendance clerks have observed that on a half day or early out day, single parents who work tend to keep their children home. These parents generally called in on those days and gave the school attendance clerks family or personal reasons for their children absences. In a school year, the TUSD district schools have 12 half days.

**School Factor**

As stated earlier, school in this study is correlated highly with the family predictor. Socially-advantaged schools, just as the socially-advantaged families factor, correlates negatively with health and unexcused absences. The negative correlation indicates that children that go to schools that are segregated, have high ITBS scores and high level of parental involvement, and lack social programs are less likely to have health and unexcused absences.

Other non-family factors such as gender and grade did not have an influence on attendance in this study. Gender effects on school attendance, however, have been identified in other studies. One study found that boys have better attendance (Berg, et. al., 1987) whereas other study found that most school refusers are boys aged 7 to 12 years (Kearney & Beasley, 1994).

It is suspected that the gender was non influential due to age of the student population studied. A gender effect may be found if the student population is older. Factors such menstrual pain, pregnancy, and being mothers in teenage
females have been found to have a negative effect on school attendance (Leadbeater, 1996; McSparrin, 1993; Seitz & Apfel, 1994; Teperi & Rimpela, 1989). For example, a study which involved 3,370 12-13 year old girls found that school absenteeism is highly related to menstrual pain (Teperi & Rimpela, 1989). Other studies found that pregnancy and being teenage mothers account for many school absences among teenage females -- so much that one study reports that up to 40% of females who dropped out leave school due to pregnancy (Dunkenfield, 1997).

Behavioral problems (Berg et al., 1986), and drug use in males (Washington DC, 1994) could potentially affect school attendance. For example, one study in Hawai'i's public schools found that students' injuries due to accidents that affect school attendance tend to be mostly with intermediate grade levels (Taketa, 1984). Others have found that "rough and tumble" play (i.e., "active physical forms of play that have the appearance of aggression") is a masculine form of play which is seen mostly in boys (DiPietro, 1981; Freedman & Deboer, 1979; Humphrey & Smith, 1984; Macoby & Jacklin, 1987; Pellegrini, 1986).

Different games and interactions are also observed in boys and girls (MacCoby, 1988, MacCoby, 1990; Sanders & Harper, 1976; Stoneman, Brody, & MacKinnon, 1984; Tauber, 1979; Tizard, Phillips, & Lewis, 1976; also see review in MacCoby & Jacklin, 1987; MacCoby, 1988, 1990). Furthermore,
"Boys are more likely to play outside and in more public places, in larger groups, and further away from adults. Girls are more likely to choose a domestic theme for play, whereas boys more often pretend to be driving vehicles, fighting, and killing." (cited in Hoyenga & Hoyenga, 1993, p. 316) Moreover, "Boys' games are more often involve throwing (e.g., baseballs, footballs)." (Freeman & DeBoer, 1979; Hughes, 1988; Lever, 1976; Parker, 1984). It is logical to assume that, because boys tend to play much rougher and more dangerously than girls, boys are more likely to result in more absences due to these acquired injuries.

Other studies discovered that the primary reason for older students (i.e., Jr. High) to be retained is behavioral suspension and absenteeism (Safer, 1986). Still, another source reports that alcohol and drug use and being in gangs are some factors that may be responsible for many dropout students (Dunkenfield, 1997). Moreover, in a study that identified the 45 factors that associate with at-risk children who are at a much greater risk of failing in school and life, drug use and engagement in substance abuse ranked second on the list (Watkins, et. al., 1994). The number one ranked item on the list is attempted suicide.

Other studies also noted that the higher the adolescent score on a "Need" scale, the greater the likelihood of them engaging in substance use, smoking cigarettes and marijuana and drinking alcohol (Mainous, 1996). Other study pointed
out that adolescents' school attendance is affected by their use of marijuana and cocaine (Washington D.C., 1994).

Based on these findings, a gender effect on school attendance in this study might be found if the studied population was older. These findings also lend support to one of the author's hypotheses that the school attendance behavior of these younger children (9 to 10 years old) in this study is influenced more by family circumstances than non-family factors such as the child's gender or ability, or peer pressure. Research has shown that children begin to imitate by 14 months of age (Beck, 1989). Most of their early years' imitation or influence come from people within their family. As they get older, other influences such as those from peers, media and school tend to become much stronger than those of their family. One study reports that these older children spend more time with peers than with any other "agent of socialization" (Medrich, 1981). Other studies found that children of 11 and 14 years of age are most susceptible to peer conformity especially in the areas of peer-sponsored misconduct. Other areas and activities such as dressing, going to parties, drinking, smoking, having boy/girl friends, and having sex are pressure normally face by adolescents (Brown, Lohr, & McClenahan (1986).

Media influence is also gaining as children get older. It is said that children watch more T.V. as they get older (Liebert & Sprafkin, 1988) and that their viewing time and
content are being monitored less and less by adults (Rossiter & Robertson, 1975). One study found that parents at time had resort to T.V. as baby-sitter for their children (Hollenbeck & Slaby, 1979). Children's behaviors and beliefs have been found to be affected by television viewing (Eron, 1987; Murray & Kippax, 1979; Rushton, 1979). Other non-family influences have been attributed to school (Beck, 1989; Minuchin & Shapiro, 1983). It has been estimated that by the time children graduate from school that they will have spent about 15,000 hours in school (Beck, 1989). These findings suggest that many aspects of children's lives will be influenced beyond the family and that school attendance behavior is one of them.

A grade or ability effect was not found to have an influence on school attendance of these 3rd-graders. There is, however, evidence from previous studies that the academic performance of children with attendance problems is lower than those without attendance problems (Easton & Engelhard, 1982; Watkins et al., 1994). It is possible that the effect is reversed meaning instead of grade/abilities affect attendance --attendance affects grades or abilities. There is evidence for this, especially early in school years (Entwisle, 1987). But it is also possible that those children who first come into public schools come with inferior academic abilities (because of lack of pre-school experiences and/or lower cognitive abilities) and realize or
observe this discrepancy between themselves and other later on in their school years. These children then start to withdraw from school and develop school attendance problems. In fact, items such as "Failed 2 courses last school year", "Was retained in grade", and "scored below 20th percentile on standardized test" ranked high on the 45 at risk of failing in school or in life factors (Watkins, et. al., 1994).

A grade effect in this study might also be found if grades were to be operationally defined more than just good and poor (e.g., excellent, good, satisfactory, need improvement).

The number of siblings and residency changes in this study did not have an effect on school attendance.

**Conclusion**

It is concluded, based on the present and previous studies, that children at this age are influenced more by family and school circumstances than other factors such as the child's intrapersonal characteristics such as abilities, personality, and/or gender. Furthermore, children that come from homes with two white parents and homes that have more than one income are less likely to be absent. Furthermore, these children tend to attend schools that are segregated with high ITBS scores and high level of parental involvement. These schools also tend not to have social programs.
Study’s Limitations and Future Directions

One of the study’s major limitation was that the amount of variance in the school attendance variables examined was small. In addition to resolving the data limitations mentioned earlier, future research may want to focus on other possible school variables such as the student’s attitude, I.Q., and standardized achievement tests. Other potential influential variables on school attendance include parents' incomes (e.g., $10,000-$20,000) and education, different distances between home and school, a larger sample of students who make frequent residence changes during school year, and different school locations including non-public schools.
Hierarchical General Linear Modeling Results for Health, Personal, and Unexcused Absences

### HEALTH

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REFERENCES


The Executive Director, (1983). "Hi. Your kid cut class today. At the tone,..." Executive Educator. 5, 8.


