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**THE IMPACT OF ADVENTIST SCHOOLS
ON STUDENTS**

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Since the Adventist church invests significant resources in its elementary and secondary school system, it is important to determine what impact these schools have on students. Schools have an impact on students in both planned and unplanned ways. Schools develop curriculum to foster the goals and objectives that they want to accomplish, but in addition, schools have an impact on students in areas that are not specifically taught in the curriculum. This paper only deals with the extent to which Adventist schools have an impact on the goals and objectives they have set for themselves.

The North American Division Office of Education has developed a Mission of Seventh-day Adventist Education that is found on its web site.

The Seventh-day Adventist Church in North America operates a system of elementary and secondary education that began in 1872. The church's unique philosophy of Christian education is based on the Scriptures and the writings of Ellen G. White. All children and youth have been entrusted by the church to the education system for spiritual nurture and educational excellence.

The primary aim of Seventh-day Adventist education is to provide opportunity for students to accept Christ as their Saviour, to allow the Holy Spirit to transform their lives, and to fulfill the commission of preaching the gospel to all the world.

The education program is predicated on the belief that each student is unique and of inestimable value, and on the importance of the development of the whole person. Students are educated to accept service as a way of life, to be sensitive to the needs of people in the home and society, and to become active members in the church. (North American Division of Seventh-day Adventist Office of Education, 2008b).

There are three key elements in this mission statement: 1) the curriculum is based on Scripture and the writings of Ellen White, 2) the outcomes include both spiritual nurture and educational excellence, and 3) the outcomes are holistic.

Ellen White (1903) outlined the goals of education in broad strokes, emphasizing the breadth and depth of outcomes desired. In terms of breadth, she calls for "the harmonious development of the physical, the mental, and the spiritual powers" (p. 13), and in addition to "imparting to them only technical knowledge" students should be inspired "with principles of truth, obedience, honor, integrity, and purity" and "above all else, to learn life's great lesson of unselfish service" (pp. 29-30). In terms of depth, she states that "Higher than the highest human thought can reach is God's ideal for His children. . . He will advance as fast and as far as possible in every branch of true knowledge" (p. 18).

The North American Division has developed broad curriculum goals for Adventist schools that have been categorized in 10 areas: Acceptance of God, Commitment to the Church, Interpersonal Relationships, Responsible Citizenship, Healthy Balanced Living, Intellectual Development, Communication Skills, Personal Management, Aesthetic Appreciation, and Career and Service (North American Division of Seventh-day Adventist Office of Education, 2008a). These goals incorporate a broad range of cognitive, affective, and behavioral outcomes.

Ideally the Adventist school system should have a system-wide assessment plan that would evaluate how well each of these goals has been met, identify strengths and weaknesses, and evaluate the impact of changes that are implemented. Since there is currently no broad assessment system in place, in this paper a wide variety of research studies that assess some, but not all, of these goals will be reviewed.

Outcome Assessment Model

This paper combines published and unpublished research to assess the extent to which Adventist schools have accomplished these goals. In addition, additional secondary analyses of data sets of major research projects have been done for this paper. To conduct an adequate assessment of goals, it is important to consider a large number of variables. A school impact model (Figure 1) has been developed to clarify the variables that might be considered. This model includes three types of variables:

1. Outcome (dependent) variables: variables that relate to the goals of Adventist education.
2. Adventist-school causal (independent) variables: variables related to curricular experiences within Adventist education that can be expected to result in or cause growth toward desired outcomes.
3. Extraneous (control) variables: non-school variables that are either causal variables or are variables that interact with causal variables.

The model uses Alexander Astin's Input-Environment/Experience-Output scheme (Astin, 1993) which incorporates these three types of variables. As input, each student brings to the school a background that includes the influence of heredity characteristics such as gender, and prior environmental influences, including those related to family, church, peers, and society. During the years a child is in school, he/she is exposed to an environment or experience composed of school-related influences of the teacher, curriculum, and school and other concurrent out-of-school experiences related to family, church, peers, and society. The output or outcomes of the school experience can be classified as three domain areas: cognitive, affective, and behavior, or three content areas: mental, physical, and spiritual.

The studies referenced in this paper collected data for hundreds of outcome variables, but results for only a limited number of outcomes will be included here to illustrate the type of impact Adventist schools can have. This paper does not attempt to do a comprehensive assessment. The outcomes to be evaluated are organized in six sections based on two content areas: Spiritual and Other, and three domain areas: Cognitive, Affective, and Behavior. The 24 specific outcomes evaluated in this paper categorized within each of the 6 sections are:

Cognitive – Spiritual Outcomes

Bible knowledge

Cognitive – Other Outcomes

Achievement in standard academic areas (e.g., Reading, Writing, Mathematics)

Mental ability

Affective – Spiritual Outcomes

Faith maturity

Grace orientation

Importance of religious beliefs

Relationship and commitment to Jesus Christ

Adventist orthodoxy

Attitude toward Adventist beliefs

Attitude toward the church

Denominational loyalty

Intention to be an active Adventist

Intention to marry an Adventist

Intention to remain in the Adventist church

Affective – Other Outcomes

Social concern

- Behavior – Spiritual Outcomes
 - Bible study
 - Pay tithe
 - Prayer
 - Adventist evangelism
 - Adventist piety
 - Church attendance
 - Seventh-day Adventist church member
- Behavior – Other Outcomes
 - Health
 - Social action

The degree to which the outcomes of Adventist elementary and secondary education indicated above have been met will be evaluated for Adventist students who have not attended Adventist schools, those who have attended Adventist schools for part, but not all of the schooling, and those who have only attended Adventist schools. Adventist students in Adventist schools will be compared to Adventist students in public schools. There will be no attempt to evaluate different types of Adventist education, nor the impact of different methods or different experiences within Adventist education. There will be some control for extraneous variables such as grade/age, student cognitive ability, student religious affiliation, home characteristics, including parent religious affiliation, and church characteristics.

Research Studies

This section will briefly describe each of the 12 data sets and the 18 research studies or reports using these data sets that are referenced in this paper. Both original analyses and secondary analyses of the data sets done for this paper will be included. The data sets are presented in chronological order of the first published report related to the data set. A brief description of the sample and procedure used are given for each research study.

Data Set 1: Thayer (1978)

- Sample: Data from all students in grades 2-8 from schools in four conferences in the Atlantic Union from 1974-1977. N = 7,768.
- Procedure: Compared the achievement of students on standardized achievement tests controlled for school ability for students varying in the number of years of Adventist schooling, and varying by school size.

Data Set 2: Minder (1985)

- Sample: 400 family units were randomly selected from the Lake Union and 287 families responded. N = 993.
- Procedure: Compared Adventist youth with no Adventist education, some Adventist education, and those with only Adventist education on whether they joined and stayed in the Adventist church.

Data Set 3: Dudley (1989), Dudley and Kangas (1990), Dudley (2000), and Thayer (2008c)

- Sample: The Youth Retention Study. Adventist youth, about evenly divided between students in Adventist schools and students in non-Adventist schools. N = 1,523 in year one and N=783 in year 10.
- Procedure: A longitudinal study on a wide range of outcomes, beginning in 1987-88, studied youth ages 15-16 for ten years. Surveys were given each year. Dudley and Kangas (1990) reported on results for years 1 and 2, Dudley (2000) reported on all 10 years, and Thayer (2008c) reanalyzed data for all 10 years for this paper.

Data Set 4: Rice (1990)

Sample: Adventist academy and public high school graduates from Southern California. N = 264.

Procedure: The class of 1976 was studied 13 years later. Compared Adventist public high school graduates and Adventist academy graduates on whether they stayed in the church.

Data Set 5: Epperson (1990)

Sample: 300 family units were randomly selected from the Southern Union and 210 families responded. N = 844.

Procedure: Compared Adventist youth with no Adventist education and those with more Adventist education on whether they stayed in the church.

Data Set 6: Dudley (1992) and Thayer (2008b)

Sample: The Valuegenesis study. 10,641 Adventist students in Adventist schools and 457 Adventist students in non-Adventist schools were studied. Non-Adventist students in Adventist schools and Adventist students in public schools were excluded from most analyses reported in this paper. For this paper, Thayer studied two sub-samples from the Valuegenesis study: 2,267 12-grade Adventist students in Adventist schools and 683 of these students who reported that they had a good home, religious parents, a good church, and a good school.

Procedure: The Valuegenesis study gathered a wealth of data related to the influence of family, school, and church on the formation of faith. Two types of comparisons were made that are related to this paper. First, Adventist students in public schools were compared to Adventist students in Adventist schools. Also Adventist students in Adventist schools with fewer years in Adventist schools were compared to those with more years in Adventist schools. Dudley authored the book on the original analysis of the Valuegenesis data and Thayer reanalyzed the data for this paper. Thayer studied two sub-samples of the complete Valuegenesis dataset to partially control for church membership and age of the student, and school, home and church characteristics. Eliminated in this analysis were students in grades 6-11, students not a member of the Adventist church, and students not in Adventist schools.

Data Set 7: Thayer (1992)

Sample: Students in grades 4, 6, 8, 10, and 12 from all schools in the Lake and Southern Unions from 1989-1992. N = 20,515.

Procedure: Compared the achievement of students on the standardized Seventh-day Adventist Religion Achievement Test for students varying in the number of years of Adventist schooling, and controlling for parental Adventist background.

Data Set 8: Pawluk (1993)

Sample: Students from grades 5-8 in Adventist schools in the Pacific Northwest. N = 288.

Procedure: Compared students from multi-grade classrooms and single-grade classrooms on a standardized achievement test, controlling for school ability.

Data Set 9: Carlson (1996)

Sample: Students from the Mid-America Union, about evenly divided between those in Adventist academies and those in public high schools. Data collected in 1994-95. N = 290.

Procedure: Collected data using a survey with many of the same variables as Valuegenesis. Only 32% of the students selected from public schools participated in the survey whereas 83% of those in Adventist academies did so.

Data Set 10: Gillespie (2004)

Sample: The Valuegenesis II study.

Procedure: Valuegenesis I was replicated with a shorter survey. Although many desirable outcome variables were measured, there were no questions related to Adventist education with Valuegenesis II, so the extensive data of this study cannot be used in this paper.

Data Set 11: Thayer (2006)

Sample: All students in grades 2-8 from schools in Southern New England from 1995-2004. N = 300-400 students per year, with 3,801 total being tested over the 10 years.

Procedure: A longitudinal study following students over a 10-year period comparing students on achievement on a standardized achievement test controlling for ability, for students varying by amount of Adventist schooling, school size, and class size.

Data Set 12: Cruise, Kido, and Thayer (2007), Thayer (2008a)

Sample: The CognitiveGenesis study. A population study of all students from grades 3-9 and 11 in Seventh-day Adventist schools in the North American Division. Results for the United States and Bermuda are reported in this paper. Students in Canada took similar, but not identical tests and their results have been reported separately. Testing for years one and two were done in fall, 2006 and fall, 2007. N > 27,000 each year.

Procedure: The CognitiveGenesis study is gathering a wealth of data related to the relationship between home, teacher, and school variables on achievement and ability over a four-year period. Results of the first year of testing were reported by Cruise, Kido, and Thayer (2007) and Thayer (2008a) did a preliminary analysis of the second year of testing for this paper.

Research Methodology

Various types of research methodologies were used in the studies cited in this paper. In interpreting the results of these studies it is important to know the advantages and limitations of the methodologies used.

Date of data collection

The data used in the studies cited in this paper were collected over a 30-year period, from the mid 1970's to 2007. Results of more recent studies should be given more weight in applying results to the current situation.

Sample size

Many studies used a relatively small sample of around 300 subjects, and many studies used large samples of over 1,000 subjects. Results of studies based on larger samples should be given more weight.

Representativeness of the sample

The ideal research study is one in which data is collected on the complete population of all subjects. This type of study is quite rare because of the cost involved and the difficulty in gathering the data. The CognitiveGenesis study, and three studies by Thayer (1978, 1992, and 2006) were the only studies cited in this paper that included a complete population.

When data is collected on a sample of the population, it is desirable that the sample be as similar to the population as possible. The usual way of trying to get a representative sample is to take a random sample, or a stratified random sample. With survey research, which included all of the studies cited in this paper, randomness occurs in two places: the selection of the subjects, and the cooperation of the subjects. Many of the studies cited in this paper used random selection of subjects, but none of them achieved

100% cooperation from the subjects.

Potential bias exists to the extent that data was not collected from all subjects sampled. The smaller the percent of returns to the survey, the less likely the sample is representative of the population. When there is a substantial loss of subjects due to non-response, a check for bias on known demographic characteristics of the population or persons sampled is helpful.

In many of the studies cited in this paper, a major source of bias is the lower percent of responses from students not attending Adventist schools. Data was frequently collected from students in Adventist schools as a group, with the school administration administering the survey, but data was collected from students not in Adventist schools outside of school time, sometimes resulting in a very low percent of returns. For example, in the Valuegenesis study the researchers desired to have substantial samples of Adventist students both in and out of Adventist schools since they assumed that there were about equal numbers of students in and out of Adventist schools. Data was collected from all students in the Adventist schools that agreed to participate. Students attending non-Adventist schools in the same geographic area as the cooperating Adventist schools were invited to participate in the study but very few students actually participated. Whereas Valuegenesis was hoping for large numbers of students from both Adventist and non-Adventist schools, they ended up with 10,641 Adventist students in Adventist schools and 457 Adventist students not in Adventist schools.

In cases such as this, the researchers recognized that there was probably a bias in that it was expected that the students more connected to the Adventist church would be more likely to participate in the study. If this bias was real, differences reported between the sample of students in Adventist schools and the sample of those not in Adventist schools would underestimate the true difference between the populations of these two groups.

As an example of checking for sample bias, in Dudley's Youth Retention Study in which data was collected over 10 years, Thayer (2008c) checked the characteristics of the 1,526 subjects from whom data was collected in year one with the 769 subjects who responded in year 10. He found that on two religious characteristics, the groups were relatively similar, indicating that the subjects who dropped out of the study were not noticeably different in these initial characteristics. The percentage of subjects who attended church weekly in year one was 88% for the complete year one sample and 90% for the year ten sample. The percentage of subjects who said they intended to remain an active Adventist at age 40 in year one was 56% for the complete year one sample and 62% for the year ten sample. The ten-year sample was almost identical in beginning characteristics on these two items.

Short-term and long-term impact

Some studies included outcomes while the students were in elementary or secondary school while others dealt with outcomes measured many years after leaving school. There are problems with each of the two most common methods used to study long-term outcomes. It is difficult to design a longitudinal study that maintains contact with the students for a long period of time because it is very costly and it does not allow the research study to be concluded for many years. If a retrospective study is done in which the subjects are only selected many years after leaving school, the sample is likely to be biased because many subjects would not be found. As it relates to this paper, a retrospective survey would be less likely to include subjects who attended public school and had dropped out of the Adventist church since they would both be harder to find and would be less likely to respond. This type of study is likely to underestimate the number of youth who leave the church. The results of properly-conducted longitudinal studies should be given more weight since long-range outcomes are probably more important than short-term outcomes.

Self-reporting

All of the studies cited in this paper collected self-reported data. Much of this data measures student's intentions such as intention to remain an Adventist or intention to marry an Adventist. In most cases the behavior related to the intention is more important than the intention. But to collect this data, you must usually study the long-term impact which requires waiting many years before collecting the

data. A possible bias of measuring intentions is that social desirability is more likely to be present than it would be in measuring the behavior. It is easier to falsely say on a survey that you intend to marry an Adventist than it would be to falsely say that you have married an Adventist. Results related to behavior should be given more weight than results related to intentions.

Measuring the impact of Adventist schooling

There are many independent variables that could be used to measure the extent of Adventist schooling. There are three main options used in the studies cited in this paper. One option would be to determine the type of school the student is attending, and then find the difference between students in an Adventist school and students not in an Adventist school on desirable school-related outcomes. The problem with this option is that it is difficult to get a good sample of students not in an Adventist school. Another option is to limit the sample to students in Adventist schools and then find the relationship between the number of years in Adventist schools and desirable school-related outcomes. The problem with this option is that it does not study at least half of Adventist children – those in public school. A third option is to study all members of Adventist families and compare those with more and less Adventist schooling. This method will likely exclude many persons who are no longer members of the church and are not part of a family that is still in the church. A study that includes students with both Adventist and non-Adventist schooling that has a good sampling of both groups should be given more weight.

Control

When differences are found between students attending Adventist schools and those not attending Adventist schools on desirable school-related outcomes, or relationships are found between the number of years in Adventist schools and desirable school-related outcomes, one cannot directly infer that the differences or relationships are caused by being in an Adventist school. In order to establish a causal relationship between Adventist schooling and desirable school-related outcomes, there must be control for other causal factors. For example, it is very likely that parents who send their children to an Adventist school are different from those who do not send their children to an Adventist school. Some of these differences may be the cause of the differences or relationships that are observed. Good studies try to eliminate or control for these factors to make interpretation of the differences or relationships clearer. Factors that are controlled in some of the studies cited in this paper are the ability of the students, the age of the student, home characteristics, church characteristics, and school characteristics. Studies that include more control should be given more weight.

Relative Influences of Home, Church, and School

In the first year of Dudley's Youth Retention Study, subjects were asked to evaluate the influence of home, church, and school on their spiritual experience. Dudley & Kangas (1990) reported that the percentage of subjects that thought each group was a helpful influence on their spiritual experience was 74% for members of their home family, 55% for members of their church family, and 34% for members of their school family. Since approximately half of the students were in public schools, the low rating for schools on spiritual experience is understandable. In his reanalysis of the Youth Retention data, Thayer (2008c) found that limiting the analysis to students in Adventist schools and using more direct questions such as "What I learned at home," "What I learned at church," and "What I learned at school," the percent of subjects who thought each entity was a helpful influence on their spiritual experience were 82% for home, 74% for church, and 70% for school. In this paper only the school impact will be studied. While the impact of the school was rated slightly lower than the home or church, it was rated as helpful for a majority of the students.

Results

In this section, the impact of Adventist schools on students will be presented separately for each of the outcome variables, organized by the domain and content areas presented earlier. The results will be presented in seven parts: General Results, Cognitive Spiritual Outcomes, Cognitive Other Outcomes, Affective Spiritual Outcomes, Affective Other Outcomes, Behavior Spiritual Outcomes, and Behavior Other Outcomes.

General Results

There were two major research projects that dealt with a large number of subjects and a broad range of variables related to desired educational outcomes: Valuegenesis and the Youth Retention Study. Five analyses are reported in this paper for these research projects. Dudley (1992) and Thayer (2008b) report on the Valuegenesis study and Dudley and Kangas (1990), Dudley (2000), and Thayer (2008c) report on the Youth Retention Study.

In analyzing the Valuegenesis data, Dudley (1992) found a positive relationship between Adventist education and many variables measuring desirable outcomes.

In reanalyzing 12th grade Adventist students in Adventist schools in the Valuegenesis study, Thayer (2008b) found that all relationships between desirable outcomes and years of Adventist education were too small to be important. When only students who indicated they were in a good school were compared, the results were the same, both for those who felt their home and church were good and those who thought their home and church were not very good.

In his Youth Retention Study, Dudley (2000) found a positive relationship between Adventist education and many variables measuring desirable outcomes. Only one variable favored students not in Adventist schools - social concern. There were many variables, however, that showed no relationship with attendance at Adventist schools.

In reanalyzing the Youth Retention Study, Thayer (2008c) also found a positive relationship between Adventist education and many variables measuring desirable outcomes but found two variables that favored students not in Adventist schools – social action and social concern (these variables had been combined and called social concern in Dudley’s analysis). For almost all variables there was a stronger relationship between desirable outcomes and attending Adventist secondary schools than with attending Adventist elementary schools.

In the results of studies reported below, for a given outcome variable the results are sometimes inconsistent. One or more studies may report a positive relationship between the outcome variable and Adventist education but other studies may not show any relationship or even a negative relationship. Differences in study characteristics such as the time when the study was done, sample size or sample characteristics, or whether control variables were used will affect the results. The overall trend of all studies and the characteristics of each study need to be considered when evaluating the impact of Adventist education on each outcome.

Outcome Group 1: Cognitive Spiritual Outcomes

Cognitive spiritual outcomes include knowledge, understanding and application outcomes that would typically be taught in Bible and Religion classes. The only research found that measures these outcomes was by Thayer (1992) that used the Seventh-day Adventist Religion Achievement Test to measure achievement of students on objectives of the Adventist Bible and Religion curriculum in grades 3-12.

Thayer found that students with more years of Adventist schooling averaged 8% higher in achievement than those with fewer years in the Adventist system. The percentage advantage for those with more Adventist schooling ranged from 5-11% across groups of items classified according to the 27 Fundamental Beliefs.

Outcome Group 2: Cognitive Other Outcomes

Other cognitive outcomes include outcomes in academic achievement and cognitive ability. Research has been done for achievement in curriculum-based areas of reading, language arts, mathematics, social studies, science, and sources of information and development in verbal, quantitative, and non-verbal cognitive abilities.

The Adventist school system has given standardized tests to most students for many years, but results have not been widely disseminated in research studies. Achievement tests are routinely given but cognitive ability tests are not as frequently given. When ability tests are given, they are usually used as control variables rather than outcome variables. Results in this paper will be presented for four research studies that report results of achievement testing and one research study that reports results of ability testing evaluated as an outcome variable.

Thayer (1978) studied students in the Atlantic Union. He found that after controlling for ability, the achievement of students with all Adventist schooling was two months ahead of those with no previous Adventist schooling.

Thayer (2006) studied data for students in the Southern New England Conference over a 10-year period. He found that the overall average for students in each grade was above the national average. The gain from one year to the next was also above the national average for all grades and on tests in all subject areas. The gains from year to year were cumulative with students remaining in the conference for 5 years (grades 3-8) having the highest gains. There was no significant difference between achievement of students in schools of different sizes measured by either the number of teachers in the school or the number of students in each grade. Students who initially scored low in achievement had the highest gains from year to year. Students who initially scored much above average stayed about the same from year to year.

In the CognitiveGenesis research study, Cruise, Kido, Thayer (2007) and Thayer (2008a) found that students in the United States and Bermuda achieved well above the national average in all subject areas on the Iowa Tests of Basic Skills and Iowa Tests of Educational Development, and achieved well above the level that was predicted by an ability test (Cognitive Abilities Test). The above-average achievement and higher achievement than would be predicted by ability was for all grades, all subjects, all school sizes, and for students of all ability levels. The composite achievement scores for elementary students in Adventist schools who were tested both in 2006 and 2007 were at a percentile rank of 62 in 2006 and a percentile rank of 63 in 2007.

Research based on students in the North Pacific Union (Pawluk, 1993), Atlantic Union (Thayer, 1978), and United States and Bermuda (Cruise, Kido, Thayer, 2007 and Thayer, 2008a) found that after controlling for ability, students in smaller (1-2 teacher) schools achieved at the same level or better than students in larger schools in basic curriculum areas.

Data in the CognitiveGenesis study included the Cognitive Abilities Test which measures verbal, quantitative, and non-verbal abilities. The composite ability scores for students in grades 3-8 in Adventist schools in the United States and Bermuda who were tested both in 2006 and 2007 were at a percentile rank of 52 in 2006 and a percentile rank of 60 in 2007.

In the CognitiveGenesis study, the number of years of Adventist education showed a strong relationship with both achievement and ability based on the 1,725 grade 8 students for whom prior educational experience data was available. When comparing the achievement and ability of groups of 8th grade students with 0, 1-2, 3-6 and 7 years in Adventist schools prior to grade 8, the four groups scored at percentile ranks of 50, 57, 64 and 73 on achievement, and at percentile ranks of 48, 51, 59, and 65 on ability. Students with all Adventist schooling were 23 percentile ranks higher on achievement and 17 percentile ranks higher on ability than students with no prior Adventist school experience.

Outcome Group 3: Affective Spiritual Outcomes

Research that dealt with affective spiritual outcomes has been reported by Dudley and Kangas (1990), Dudley (1992), Dudley (2000), Thayer (2008b) and Thayer (2008c). The affective spiritual outcomes from these studies reported in this paper include five general Christian outcomes: faith maturity (Thayer Faith Maturity Scale), grace orientation, commitment to Jesus Christ, change in the relationship with Christ, and importance of religious faith, and five outcomes related to the Adventist church: denominational loyalty, belief in standard Adventist doctrines, relationship toward the Adventist church, intention to remain an Adventist, and intention to marry an Adventist. It is important here to draw a distinction between affective spiritual outcomes and behavior spiritual outcomes. For example, one affective spiritual outcome is the intention to remain an Adventist. A related behavior spiritual outcome is whether the person has actually remained an Adventist. This section only deals with spiritual outcomes that are attitudes values, and intentions. A later section deals with spiritual outcomes that are behaviors.

General Christian Affective Outcomes.

The Valuegenesis study (Dudley, 1992) found a positive relationship between years of Adventist schooling and grace orientation.

Thayer (2008b), studying 12th grade Adventist students in Adventist schools from the Valuegenesis study, found negative relationships between number of years in an Adventist elementary school and faith maturity, commitment to Jesus Christ, and importance of religious faith.

In the Youth Retention Study, Dudley (2000) found that 34% of youth in Adventist schools in year 5 scored high on the Thayer Faith Maturity Scale compared to 20% of those in public schools.

Data from the reanalysis of the Youth Retention Study (Thayer, 2008c) showed that the number of years in an Adventist academy was positively related to commitment to Jesus Christ (year 6), my relationship with Christ is stronger now (years 3 and 4), and religion is important in my life (year 1). There was no relationship with faith maturity (year 1). An example of the size of the differences found was that 50% of students with all of their years in an Adventist academy said their relationship with Christ is stronger now (year 4) compared to only 38% of those with no years in an Adventist academy. Many of these differences remained when the two groups compared were limited to those with a good Adventist home and church background.

Adventist Church Affective Outcomes.

Data from Valuegenesis (Dudley, 1992) showed a positive relationship between years of Adventist schooling and denomination loyalty, Adventist orthodoxy, and intention to remain an Adventist at age 40, although those with some Adventist schooling were not as high as those with no Adventist schooling. This irregularity may be due to the inadequacies of the non-Adventist schooling sample.

Thayer (2008b), studying 12th grade Adventist students in Adventist schools in the Valuegenesis study, found positive relationships between number of years in an Adventist school and Adventist orthodoxy, denominational loyalty, and intention to be an Adventist at age 40, but a negative relationship with having the goal to remain an active Adventist.

Carlson (1996) found that 81% of students in Adventist academies intended to remain an Adventist at age 40 compared to 71% of those in high school. There was no difference between the groups in having the goal to remain an active Adventist. There was no difference between the groups in denominational loyalty after controlling for home and church background. He also found that those in Adventist academies were higher on most items related to Adventist orthodoxy than those in public schools. For example, 98% of students in Adventist academies believed that the ten commandments still apply compared to 89% of public high school students, 66% of students in Adventist academies believed that the investigative judgment began in 1844 compared to 31% of public high school students, and 79% of students in Adventist academies believed that the wicked will not burn forever, but be totally destroyed compared to 55% of public high school students. Carlson's study probably underestimated the difference between the groups due to the low response rate of his public school sample.

Data from the Youth Retention Study (Dudley and Kangas, 1990) found that 82% of the students in an Adventist academy in year 1 intended to remain an active Adventist compared to 71% of those not in an Adventist academy and 76% of those in an Adventist academy intended to marry an Adventist compared to 49% of those not in an Adventist academy. Of those who were in an Adventist academy, 80% of those who were there by choice intended to remain an active Adventist compared to 55% of those who were forced to attend the academy and 68% of those who were in the academy by choice intended to marry an Adventist compared to 42% of those who were forced to attend the academy.

Data from the reanalysis of the Youth Retention Study (Thayer, 2008c) indicated more years in an Adventist academy was positively related to their relationship toward the Adventist church (years 3-6, 9), intention to remain an Adventist (years 3 & 10), intention to marry an Adventist (year 1), can't imagine not being an Adventist (year 1), and intention to be an active Adventist at age 40 (years 5, 6). An example of the size of the differences found was that 83% of students with all of their years in an Adventist academy intended to marry an Adventist (year 1) compared to only 46% of those with no years in an Adventist academy. Most of these differences remained when the two groups compared were limited to those with a good Adventist home and church background.

Outcome Group 4: Affective Other Outcomes

Research dealing with other affective spiritual outcomes has been reported by Carlson (1996), Dudley (2000), Thayer (2008b), and Thayer (2008c). The outcomes reported in this paper related to affective other outcomes deal with attitudes towards Adventist standards and social issues or social concern.

Data from the Dudley study (Dudley and Kangas, 1990) found a greater relationship between belief in Adventist behavioral standards and the school the student is attending (Adventist or not) than with the number of years the student had attended an Adventist school. The standard with the largest relationship with Adventist schooling showed that 68% of the students in an Adventist academy in year 1 agreed with the Adventist standard on premarital sex compared to 54% of those not in an Adventist academy.

In reanalyzing Youth Retention data, Thayer (2008c) found that of 9 items that were identified as Adventist "standards" on the year 10 survey (attitudes towards tobacco, alcoholic beverages, jewelry, rock music, movie theaters, dancing, illegal drugs, sex outside of marriage, and dressing modestly), there was a relationship between number of years of Adventist schooling with 3 of the 9 – all of which were negative relationships. Students with more Adventist education were less in agreement with the standards of "One should not wear cosmetic jewelry," "One should not listen to rock music," and "One should not attend movie theaters." An example of the difference is that 31% of those with no Adventist education in grades 1-12 strongly agreed that one should not wear cosmetic jewelry compared to 13% of those with only Adventist schooling in grades 1-12.

Four studies examined the relationship between social concern or social issues and Adventist schooling. Thayer (2008b), studying 12th grade Adventist students in Adventist schools from the Valuegenesis study, found a negative relationship between number of years in an Adventist school and a social concern scale. This was also true when studying those with a good Adventist home and church background. Carlson (1996) found that students in Adventist schools were lower on social issues than students in public schools. Dudley (2000) found a negative relationship between social concern and attendance at an Adventist school. There were 8% of youth in Adventist schools in year 5 that scored high on the social concern scale compared to 12% of those in public schools. In reanalyzing Youth Retention data, Thayer (2008c) split the social concern scale used by Dudley into two scales: social concern (attitudes towards social issues) and social action (participating in socially-active behavior) and found a negative relationship between social concern attitudes and number of years in an Adventist academy.

Outcome Group 5: Behavior Spiritual Outcomes

Research dealing with behavior spiritual outcomes have been reported by Minder (1985), Epperson (1990), Rice (1990), Dudley (1992), Carlson (1996), Dudley (2000), Thayer (2008b) and Thayer (2008c). The behavior spiritual outcomes reported in this paper are five general Christian outcomes: attending church, reading the Bible, personal prayer, paying tithe, and talking to others about your faith, and six Adventist outcomes: being a member of the Adventist church, being an active Adventist, dropping out or no longer attending the Adventist church, marrying an Adventist, the Adventist piety scale, and the Adventist evangelism scale.

Four studies examined the relationship between church attendance and Adventist schooling. Epperson (1990) found that 91% of those with 11 years or more of Adventist education had regular Adventist church attendance compared to 79% with 1-10 years of Adventist education and 58% of those with no Adventist education. Rice (1990) found that 59% of graduates from an Adventist academy attended church on Sabbath regularly compared to 32% of graduates from a non-Adventist high school. In the Youth Retention Study, Dudley (2000) found no relationship between attending Adventist schools and church attendance. The reanalysis of the Youth Retention Study (Thayer, 2008c) found a positive relationship between attendance at an Adventist academy and attending church (years 1, 2, 6, 9, 10) and attending an Adventist church (year 7). Most of these relationships remained when the two groups compared were limited to those with a good Adventist home and church background.

Six studies examined the relationship between being a member of the Adventist church and Adventist schooling. Minder (1985) found that close to 100% of those with all Adventist education joined the church compared to slightly less than 70% of those with no Adventist education. Of those with all Adventist education, 98% joined and stayed in the church, compared to 79% of those with some Adventist education and 51% of those with no Adventist education. Rice (1990) found that after 13 years, 77% of Adventist academy graduates were a member of the Adventist church compared to 37% of public high school graduates. Epperson (1990) found that 97% of those with 11 years or more of Adventist education had been baptized into the Adventist church compared to 85% with 1-10 years of Adventist education and 60% of those with no Adventist education. Dudley (2000) found that membership and not dropping out were positively related to attendance at Adventist elementary and day academies, but not boarding academies. The reanalysis of the Youth Retention Study (Thayer, 2008c) indicated a stronger impact on desirable outcomes from attending Adventist secondary schools than Adventist elementary schools. Students with four years in an Adventist academy were higher than those with four years in public high school in being an active Adventist (year 1), being a member of the Adventist church (years 8 & 10), and lower in dropping out of Adventist membership or attending services (years 8 & 10). Examples of the size of the differences found were that in years 8 and 10, 98% and 91% of students with all of their years in an Adventist academy were members of the Adventist church compared with 76% and 65% of those with no years in Adventist schools. All of these differences remained when the two groups compared were limited to those with a good Adventist home and church background.

The reanalysis of the Youth Retention Study (Thayer, 2008c) found a positive relationship between attendance at an Adventist academy and personal Bible study (years 6 and 10).

Three studies examined the relationship between personal prayer and Adventist schooling. In the Valuegenesis study, there was a positive relationship between Adventist schooling and frequency of personal prayer (Dudley, 1992). The reanalysis of the Youth Retention Study (Thayer, 2008c) found a positive relationship between attendance at an Adventist academy and personal prayer (years 6 and 10). Carlson (1996) found that 71% of students in Adventist academies were high in frequency of personal prayer compared to 54% of those in public high schools.

Three studies examined the relationship between paying tithe and Adventist schooling. Data from Valuegenesis (Dudley, 1992) showed a positive relationship between Adventist schooling and paying tithe. Rice found that 50% of graduates from an Adventist academy pay tithe compared to 26% of graduates from a non-Adventist high school. The reanalysis of the Youth Retention Study (Thayer, 2008c) showed a positive relationship between attending an Adventist academy and paying tithe (year 6).

Carlson (1996) found that students in public schools talked to others about their faith more often than those in Adventist schools.

Rice found that 78% of graduates from an Adventist academy were married to an Adventist compared to 27% of graduates from a non-Adventist high school.

Thayer (2008b), studying 12th grade Adventist students in Adventist schools in the Valuegenesis study, found a negative relationship between number of years in an Adventist elementary school and Adventist piety (which included personal prayer).

Thayer (2008b), studying 12th grade Adventist students in Adventist schools in the Valuegenesis study, found a negative relationship between attending an Adventist elementary school and Adventist evangelism.

Outcome Group 6: Behavior Other Outcomes

Research dealing with other behavior outcomes have been reported by Thayer (2008b) and Thayer (2008c). The outcomes related to behavior other outcomes reported in this paper are health and social actions.

Two studies examined the relationship between social action and Adventist schooling. Thayer (2008b), studying 12th grade Adventist students in Adventist schools in the Valuegenesis study, found a small negative relationship between number of years in an Adventist school and a social action scale. Thayer (2008c), reanalyzing Youth Retention Study, found a small negative relationship between number of years in an Adventist school and a social action scale. This was also true when studying those with a good Adventist home and church background.

Two studies examined the relationship between health and Adventist schooling. Data from the reanalysis of the Valuegenesis data (Thayer, 2008b) found a positive relationship between the number of years of Adventist schooling and taking care of physical health. Data from the reanalysis of the Youth Retention Study (Thayer, 2008c) showed no relationship between the number of years of Adventist schooling and taking care of physical health in year 5.

Summary

The impact of Adventist education on Cognitive Spiritual Outcomes

There was only one study that dealt with the impact of Adventist education on cognitive spiritual outcomes. Student achievement on outcomes related to the Bible/Religion curriculum was positively related to years of Adventist education.

The impact of Adventist education on Cognitive Other Outcomes

Research studies done over the past 30 years using samples from the Atlantic Union, Southern New England Conference, North Pacific Union and the United States and Bermuda studied achievement (reading, language arts, mathematics, social studies, science, and sources of information) and ability (verbal, quantitative, and nonverbal). The most recent and comprehensive study is CognitiveGenesis. Results of all of these studies indicate that students in Adventist elementary and secondary schools have achieved above the national average and achieved above that predicted by ability tests. The relationship holds for all grades, types of schools and ability levels tested. These studies show a positive relationship between the number of years of Adventist education and levels of both achievement and ability.

The impact of Adventist education on Affective Spiritual Outcomes

Studies done over the past 20 years have evaluated the impact of Adventist education on affective spiritual outcomes, beginning with Valuegenesis and most recently with the Youth Retention Study. Studies showed consistent positive correlations between Adventist education and most variables related to the Adventist church such as denominational loyalty, denominational orthodoxy, relationship to the church, intention to remain an Adventist, and intention to marry an Adventist. There were inconsistent findings between Adventist education and more general spiritual outcomes such as faith maturity and commitment to Jesus Christ and one variable related to the Adventist church, the intention to be an active Adventist.

The impact of Adventist education on Affective Other Outcomes

Three studies examined affective other outcomes, all using items first used in the Valuegenesis study: Valuegenesis, Carlson and the Youth Retention Study. When looking at the relationship between Adventist education and attitude toward standards of behavior, one study found a positive relationship between the type of school the student was attending (Adventist/non-Adventist) and agreement with the Adventist standard of no premarital sex. Another study found no relationship between Adventist education and agreement with the Adventist standard for six variables and a negative relationship for three others. Two of the studies found a negative relationship between Adventist education and social concern.

The impact of Adventist education on Behavior Spiritual Outcomes

Eight studies examined behavior spiritual outcomes, the most of any section. Most studies found positive relationships between Adventist schooling and behavior spiritual outcomes, both general Christian outcomes such as attending church, reading the Bible, personal prayer, paying tithe, and talking to others about your faith and Adventist-related outcomes such as Adventist church membership, being an active Adventist, not dropping out or no longer attending church, and married to an Adventist. One study found negative relationships between Adventist education and the Adventist piety and Adventist evangelism scales.

The impact of Adventist education on Behavior Other Outcomes

Research dealing with behavior other outcomes have been reported by two studies. The only outcomes studied in this section were health and social action. One study found a positive relationship between the number of years of Adventist schooling and taking care of physical health while in school, and the other study found no relationship between the number of years of Adventist schooling and taking

care of physical health five years later. Both studies found a negative relationship between number of years in an Adventist school and social action.

Conclusion

The author of the most comprehensive study containing data that can be used to measure both the short-term and long-term impact of Adventist education states that “. . . the information gathered during 10 years is a ringing testimony to the benefits of Adventist education. . . . Some of the differences . . . were great and some were small, but with one exception [social concern], they all favored Christian education” Dudley (2000, p160).

Dudley and Kangas (1990) conclude that “Adventist schooling produces belief in doctrine, faith in an underlying ideal, and resolutions for the future. It does not necessarily result in a more personally experienced religion” (p.84).

The impact of Adventist education seems to be more pronounced in denomination-specific areas such as remaining an Adventist than in more general Christian areas such as commitment to Jesus Christ. In areas related to Adventist standards and social concern and action, there appears to be negative relationships.

One must be cautious in interpreting the results reported in this study because presence or absence of a relationship is not sufficient evidence for presence or lack of a causal link between Adventist education and outcomes being studied. It is difficult to separate out the effects of parents, church and school. For example, parents that more closely identify with the Adventist church are more likely to send their children to Adventist schools. Also sampling difficulties in gathering data from public school attendees and following up persons who have dropped out of the church also make one cautious in interpreting the results reported here.

While positive relationships exist between Adventist education and desirable outcomes in many cases, most are not large and for many important outcomes, there is no relationship. Even for variables where there is a strong relationship between the outcome and attending Adventist schools, such as dropping church membership, the outcome still leaves great room for improvement. “Of those who are no longer members of the Seventh-day Adventist church, 38 percent took all or most of their education in our schools. Of those who at some time during the 10 years dropped out of the church or became inactive, 58 percent took all or most of their education in our schools (Dudley, 2000, p. 160).

Recommendations

The Adventist educational system needs to have a system-wide assessment plan that periodically determines the extent to which its goals have been met. The system should include assessment of a broad range of outcomes in all domains: cognitive, affective, and behavior, and outcomes that are both spiritual and non-spiritual. Developing this system would include 1) re-examining the goals and objectives of the Adventist educational system, 2) determining which goals and objectives would be assessed as part of a system-wide assessment system, 3) developing an assessment plan that specifies the number and type of assessment instruments, procedures and a time line for administering each instrument, and procedures for analyzing and using the results, and 4) development of the assessment instruments.

Until an assessment plan can be implemented, attention should be given to examining, adding and/or modifying the instructional strategies related to outcomes that have been identified in this paper as having either no relationship or a negative relationship with Adventist education.

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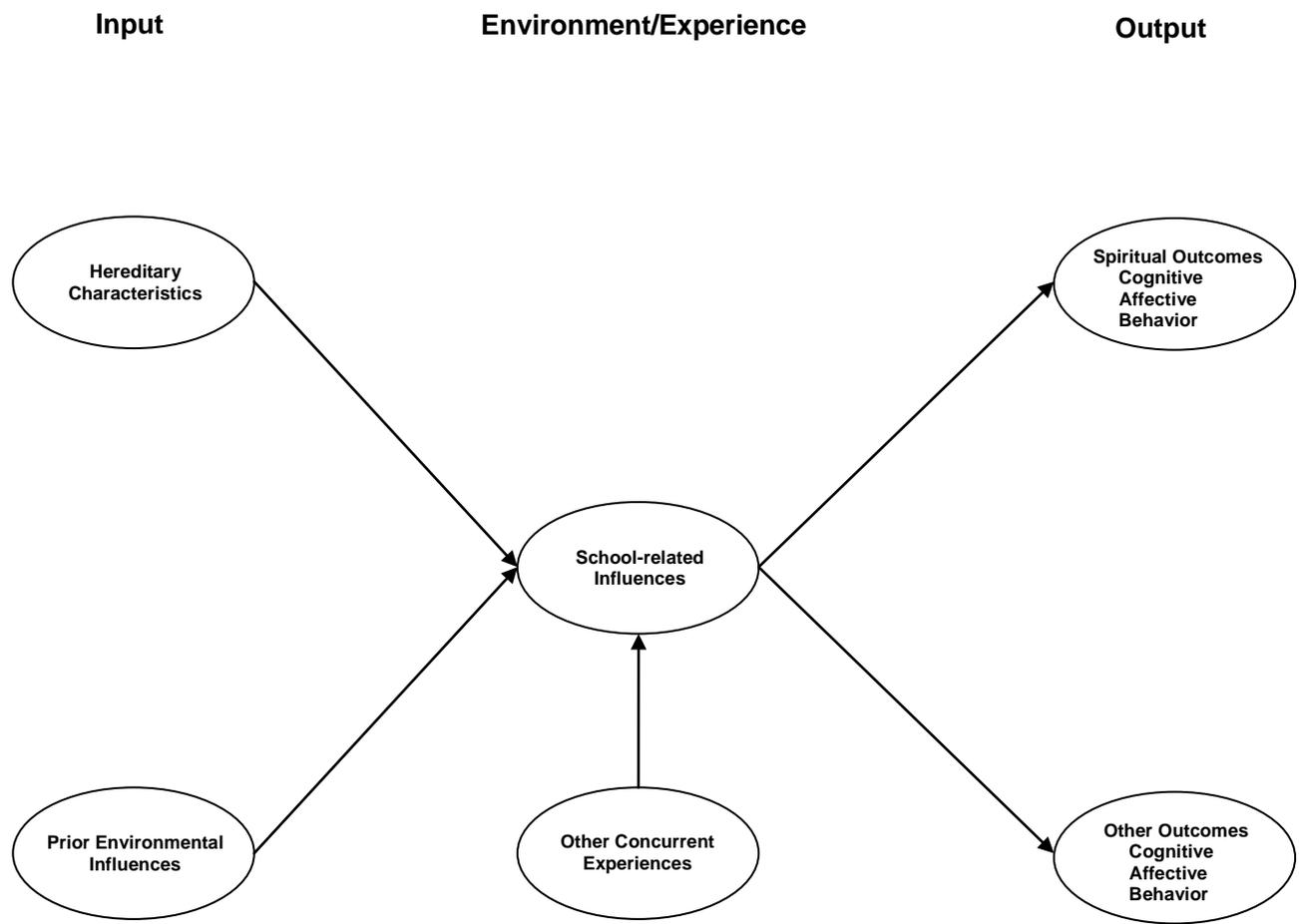


Figure 1: School Impact Model