

Assessing Adventist Academics: A MID-POINT UPDATE ON *Cognitive Genesis*

BY ELISSA E. KIDO, JEROME D. THAYER, AND ROBERT J. CRUISE



Overheard at church on Education Day: "It would really strap us to send our kids to church school, and they'll get a better education in public school, anyway.

Their curriculum is more rigorous than the church school's. The kids can get their religious training at home and at church."

Overheard at a church board meeting: "The teachers at our little church school are doing the best they can, bless their hearts, but my girls need to get a quality education in order to be competitive with those applying to good universities. That's why we are sending them to the private school in town."

These are parts of actual conversations and represent the perceptions of many Adventist parents in the North American Division (NAD). How do Adventist educators respond to these perceptions? Several small studies have indicated that students in Adventist schools do well academically, but *Cognitive Genesis* is the first large-scale study to examine the academic achievement of students in NAD K-12 schools in a comprehensive way.

Research studies over the past 20 years or so have measured many of the spiritual goals of Adventist education. Two Valuegenesis studies revealed that students grow in faith

**Cognitive-
Genesis, a
four-year re-
search proj-
ect under-
taken with
the coopera-
tion of the
**NAD Office
of Education,**
documents
elementary
**and second-
ary students'**
academic
achievement
**in Advent-
ist schools**
throughout
the United
**States, Can-
ada, and**
Bermuda.**



as a result of three things: attending Adventist schools, being raised in an Adventist home, and being fostered in an Adventist church.¹ In addition, a number of research studies have demonstrated that students who attend denominational schools are much more likely as adults to remain members of the Adventist Church.²

Adventist education is unique because of its commitment to educating the whole person. Thus, in addition to spiritual growth, cognitive and physical development are also regarded as essential to a well-rounded education. The goals of Adventist education are both broad and deep. In terms of breadth, Ellen White states that true education "is the harmonious development of mental, spiritual, and physical powers,"³ and in terms of depth, she writes: "higher than the highest thought can reach is God's ideal for His children. . . . Before the student is opened a path of continual progress. . . . He will advance as fast and as far as possible in every branch of true knowledge."⁴

Although the research cited by this article clearly shows the importance of Adventist schools in helping enhance students' walk with God, there is a lack of empirical evidence supporting the success of these schools in the academic realm. While church membership in the NAD is growing, enrollment in denominational schools is declining, thus reducing the potential influence of Adventist education. For example, during a recent 13-year period in a large NAD union, church membership increased by 17 percent, but school enrollment declined by 18 percent. The decline in enrollment, the lack of empirical

**Halfway through
the data-collection
phase, findings
from *CognitiveGenesis* indicate that
NAD students have
above-average
achievement even
after controlling for
ability.**

evidence to assuage parental concerns about the academic quality of Adventist schools, and the increasing demands for assessment and evaluation to ensure continuous improvement prompted researchers at La Sierra University and Andrews University to initiate *CognitiveGenesis*. This four-year research project, undertaken with the cooperation of the NAD Office of Education, documents elementary and secondary students' academic achievement in Adventist schools throughout the

United States, Canada, and Bermuda.

The goals of *CognitiveGenesis*, as first discussed in THE JOURNAL OF ADVENTIST EDUCATION by Hamlet Canosa (October/November 2006 issue), are to provide answers to three vital questions:

- What is the academic achievement of students in NAD K-12 Adventist schools?
- How do students in NAD schools compare to the national norms?
- What student, home, and school factors are associated with achievement?

CognitiveGenesis not only analyzes standardized achievement test scores (the Iowa Tests of Basic Skills for grades 3-8 and the Iowa Tests of Educational Development for grades 9 and 11),



but also compares these scores to the Cognitive Abilities Test. This allows the researchers to find differences between students' predicted academic achievement (based on ability) and their actual level of achievement.

Some have claimed that the above-average achievement for students in Adventist schools is due to the superior ability of the students, not the quality of the schools. Halfway through the data-collection phase (which runs from school years 2006-2007 through 2009-2010), findings from *CognitiveGenesis* indicate that NAD students have above-average achievement even after controlling for ability.



To control for student ability, the researchers use statistical procedures, taking each student's score on the standardized ability test and calculating a score that would best predict that student's score on the standardized achievement test. Each student's actual score on the achievement test is then compared to the predicted score based on the student's ability.

The good news thus far from *CognitiveGenesis* indicates that on the standardized achievement test, students in NAD Adventist schools score well above the national average on the standardized achievement test and above what would be predicted based on their ability test scores.

Relationships From Survey Data

Along with administering tests that provide an annual "snapshot" of the comparison between student achievement and national norms, *CognitiveGenesis* also seeks to discover what student, home, and school factors contribute to academic success. Each year, students, along with their parents, teachers, and school administrators, complete surveys to measure factors that might impact learning.

Two student surveys have been developed—one for grades 3-5, and one for grades 6-9 and 11, which is longer and includes more complex questions. Both student surveys include questions about the students, their home, their class, and their school, such as:



- How much time do you spend after school watching TV?
- How often do your parents not let you watch some kinds of TV programs?
- How much time in a typical day do you spend interacting (talking, shopping, working, etc.) with your parents?
- How common is it in your school for older students to help younger students with their class work?

The parent surveys, which are offered in English, Spanish, French, and Portuguese, include some questions related to those on the student surveys, as well as others unique to their role, such as:

- What type of school did your child attend in each grade?
- How involved is your family in school activities?
- What best describes the extent to which English is spoken in your home?

The teacher survey includes questions about school resources as well as student and parent interactions with educators.

Teachers are asked, for instance:

- How would you rate your school in parent support for the teachers and school?
- To what extent are student disciplinary problems a problem in your school?

The administrator survey, which is sent to all K-12 principals,

includes questions on the school's various curricular activities and the adequacy of school resources, such as:

- How many students in your school participate in music organizations?
- Rate the adequacy of number of computers for your school.

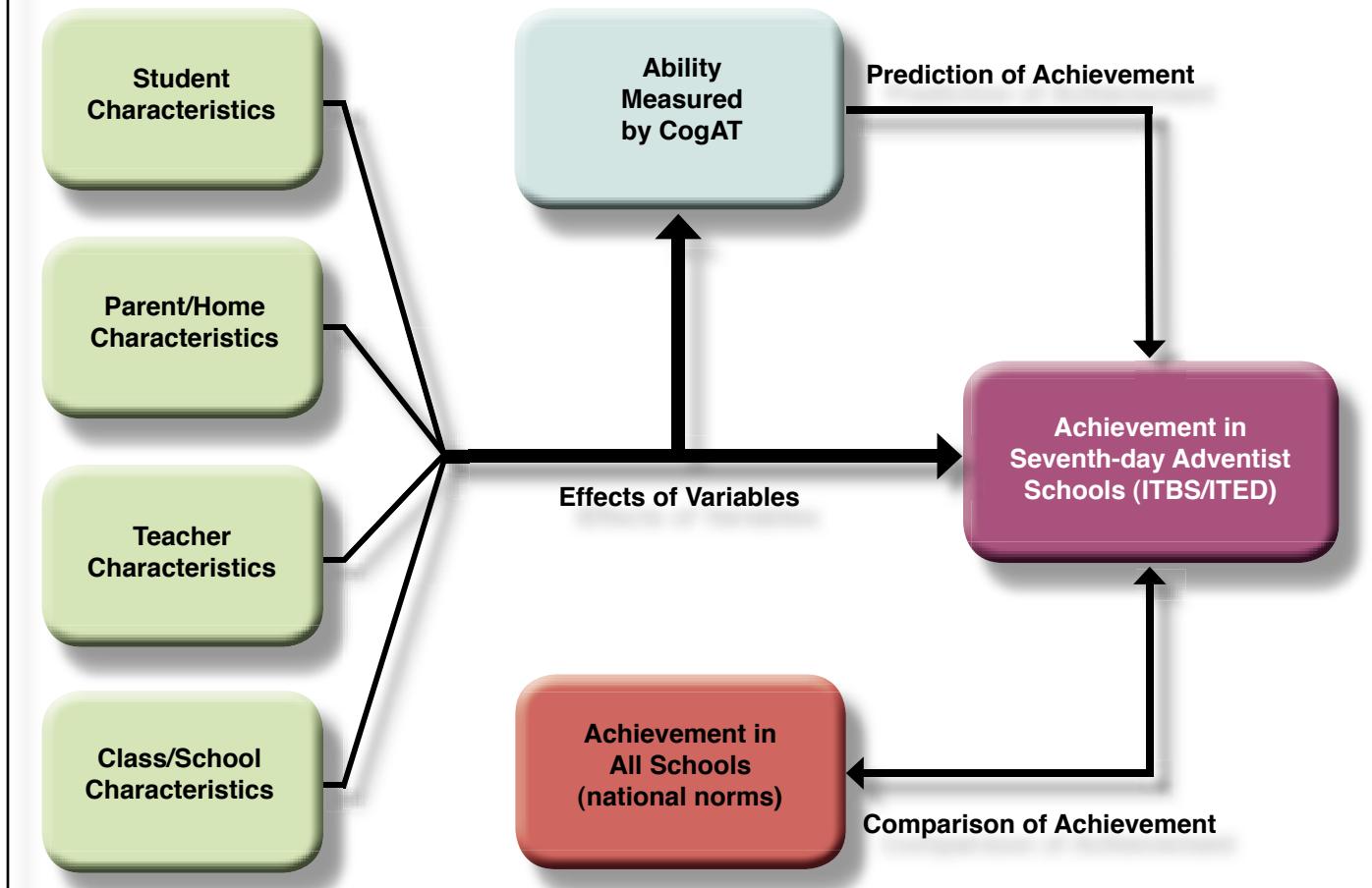
Student and school identification numbers from the NAD database are used to match student test and survey data with responses from the parent, teacher, and school surveys. A longitudinal design has been used to match data for all four years in order to study each student's change in achievement from year to year.

To ensure confidentiality, students, parents, teachers, and administrators place their completed surveys in sealed envelopes and mail them directly to *CognitiveGenesis* for processing. The research team is committed to fully respecting privacy and maintaining the highest ethical standards.

A Massive Undertaking

Gathering data from more than 30,000 students in three countries (the United States, Canada, and Bermuda) for four consecutive years is a massive undertaking. Rather than following the usual research procedure of drawing conclusions from a small sampling of schools, *CognitiveGenesis* was designed to in-

COGNITIVE GENESIS MODEL





Rather than following the usual research procedure of drawing conclusions from a small sampling of schools, CognitiveGenesis was designed to include every Adventist elementary and secondary school and every student in grades 3-9 and 11 in North America.

clude every Adventist elementary and secondary school and every student in grades 3-9 and 11 in North America. The NAD Office of Education and the educational teams in all of the unions have approved the study and have been very supportive. Cooperation at the teacher, school, conference, and union levels has been essential for the efficient gathering and processing of more than 105,000 tests and surveys for each of the past three years. The 16-member *CognitiveGenesis* Advisory Committee has also provided invaluable counsel and support. (See membership list below.) Financial support has been obtained from individuals and foundations in both the Adventist and public communities to underwrite the multi-year expense of the research.

Results So Far

The test results for the nine unions that comprise the NAD are all similar. Separate analyses have been prepared for each

of the unions, along with a combined report for eight of the unions. The Canadian Union is not included in the combined results because the achievement and ability tests used in Canada, though similar, are not identical to the tests used in the other eight unions and are based on a different national norm group. No report has been prepared that combines results from the Canadian Union with the other NAD unions. The data reported in this article are for the combined eight unions whose territories include the United States and Bermuda.

The results from years one and two have been very encouraging. Students in NAD schools are both achieving above the national average (by about half a grade level) and higher than would be predicted based on their ability test scores (also about half a grade level).

This superior achievement is wide-ranging. Students in every grade tested (3-9 and 11), at all ability levels (from special-needs to gifted), and in schools of every size (from one-room schools to the largest schools), perform at or above the national aver-

COGNITIVEGENESIS ADVISORY COMMITTEE MEMBERS

Larry D. Blackmer, M.A., Vice President, North American Division

Kelly B. Bock, Ph.D., Director of Education, Pacific Union Conference

Kathy Bollinger, M.Ed., Associate Professor of Education, Union College

Ian Bothwell, Ed.D., Professor of Education, Atlantic Union College

Paul S. Brantley, Ph.D., Director, Office of Assessment and Program Effectiveness, General Conference

Hamlet Canosa, Ed.D., Vice President of Education, Columbia Union Conference

Robert J. Cruise, Ph.D., Research Director, *CognitiveGenesis*; and Adjunct Faculty, La Sierra University

Debra Fryson, M.A., Associate Director of Education, North American Division

V. Bailey Gillespie, Ph.D., Director, John Hancock Center for Youth and Family Ministry, La Sierra University

Edwin I. Hernandez, Ph.D., Foundations Research Director, DeVos Family Foundations; and Research Fellow, University of Notre Dame

Elissa E. Kido, Ed.D., Project Director, *CognitiveGenesis*; and Professor, Curriculum and Instruction, La Sierra University

Linda Mei Lin Koh, Ed.D., Director, Children's Ministries, General Conference

Charles McKinstry, J.D., Director, Property and Trust Services/In-house Legal Counsel, Southeastern California Conference

José Vicente Rojas, M.A., Director, Office of Volunteer Ministries, North American Division

Ella Smith Simmons, Ph.D., Vice President, General Conference

Jerome D. Thayer, Ph.D., Associate Research Director, *CognitiveGenesis*; and Director, Center for Statistical Services; and Professor, Research and Statistical Methodology, Andrews University

age in all areas tested (reading, language arts, mathematics, social studies, science, and sources of information). There are negligible differences between achievement levels in large and small schools.

One area for improvement already observed across the North American Division has been confirmed in the *CognitiveGenesis* data. Scores on the Mathematics Computation test were consistently lower than any other area on the achievement test, including the other two mathematics areas: Mathematics Problems and Data Interpretation, and Mathematics Concepts and Estimation. The NAD Office of Education has formed a task force and asked *CognitiveGenesis* to provide information that can be used to guide discussions about why the scores are low and how to strengthen the mathematics curriculum.

Complete analysis of the relationships between survey information and achievement will begin in 2009 at the end of the fourth year of data collection. Some initial preliminary findings, however, are providing support for the relationship between student, home, teacher, and school factors thought to be important for student achievement in NAD schools. For example, we are finding that students have superior achievement when:

- They attend an Adventist school for multiple years;
- They do not spend a great deal of time watching television or playing on the computer;
- They have a healthy diet and get adequate sleep;
- They do not spend a lot of time participating in sports;
- They have a lot of interaction with their parents;
- There are many good books and magazines in their home;
- Their parents control time and content of TV watching and Internet use;
- Their parents are involved in school activities; and
- The church and pastor support the school.

What's Ahead?

Once the data-collection and analysis are completed, several peer-reviewed articles and one or more books will describe the findings. Already, the *CognitiveGenesis* researchers are meeting with unions and conferences to discuss local findings that might lead to school improvement. Several doctoral dissertations at La Sierra University and Andrews University are already underway using the *CognitiveGenesis* data. Other groups are taking note of the project. Riverside Publishing, which distributes the standardized achievement and cognitive ability tests used in *CognitiveGenesis*, held an invitation-only leadership summit on assessment in the summer of 2008 and invited the research team to present a report on *CognitiveGenesis*. A top leader at the company hopes the project will be a model for other parochial school systems to follow.

CognitiveGenesis and the NAD Office of Education will continue to work together to share widely the good news about Adventist education with parents, pastors, educators, and ad-



ministrators at every level. The *CognitiveGenesis* research team has already presented annual reports to all the unions and to many conferences at their teacher workshops and pastor meetings. Results of the first two years are also being disseminated via the *CognitiveGenesis* Website (<http://www.cognitivegenesis.org>), its newsletter, and a video that has been sent to each school and church in the division. Local conferences and schools are also doing their part in sharing the good news at parent meetings and through newsletters.

The Heart of the Matter

Whenever we talk with teachers across North America about *CognitiveGenesis*, they

become passionate about what they hear. The results give them cause for renewed pride that they are teaching in an Adventist school. In every subject, their students are doing better than the national average and better than what would be predicted based on their ability! We're also hearing stories of parents who get the news and decide to enroll their children.

Ultimately, we hope that *CognitiveGenesis* will provide affirmation of Adventist education in the academic area in the same way that *Valuegenesis* affirmed the spiritual. It will give parents confidence that an Adventist school offers the very best environment for their children to learn, and that it will equip them for success here and for an eternity with their Lord. ☩



Elissa E. Kido

Elissa E. Kido, Ed.D., *CognitiveGenesis* Project Director; and **Robert J. Cruise, Ph.D.,** Research Director, are members of the faculty at La Sierra University in Riverside, California. Associate Research Director **Jerome D. Thayer, Ph.D.,** is a faculty member at Andrews University in Berrien Springs, Michigan.



Robert J. Cruise



Jerome D. Thayer

REFERENCES

1. Roger L. Dudley, *Valuegenesis: Faith in the Balance* (Riverside, Calif.: La Sierra University Press, 1992); V. Bailey Gillespie, *Valuegenesis: Ten Years Later: a Study of Two Generations* (Riverside, Calif.: Hancock Center Publication, 2004).
2. Roger L. Dudley, *Why Our Teenagers Leave the Church: Personal Stories From a 10-Year Study* (Hagerstown, Md.: Review and Herald Publ. Assn., 1999); K. James Epperson, *The Relationship of Seventh-day Adventist School Attendance to Seventh-day Adventist Church Membership in the Southern Union Conference*. Unpublished doctoral dissertation, Loma Linda University, La Sierra campus, 1990; Warren E. Minder, *A Study of the Relationship Between Church Sponsored K-12 Education and Church Membership in the Seventh-day Adventist Church*. Unpublished doctoral dissertation, Western Michigan University, 1985; Robert W. Rice, *A Study of the Relationship Between Attending Seventh-day Adventist Academies 9-12 and Subsequent Commitment to the Seventh-day Adventist Church*. Unpublished doctoral dissertation, University of Denver, 1990.
3. Ellen G. White, *Education* (Mountain View, Calif.: Pacific Press Publ. Assn., 1903), p. 13.
4. Ibid., p. 18.