Lisa M. Beardsley-Hardy

The World Education Team 2015-2020

We welcome our readers to a new quinquennium. Every five years, the Seventh-day Adventist Church convenes for a General Conference (GC) session. Amidst agenda items that address fundamental beliefs, policies, and a strategic plan, the delegates elect leaders. Most of the GC Education team is returning except for Dr. Luis Schulz, who is retiring after having served as associate director of education and editor for the international editions of THE JOURNAL OF ADVENTIST EDUCATION (JAE). The department salutes and thanks Dr. Schulz for his exemplary and warm-hearted service. He will be missed. Taking up the reins for the international edition is Dr. Julián Melgosa, who has served the Seventh-day Adventist educational system in five divisions: the Inter-European Division (Sagunto Adventist Academy and College, Spain), Trans-European Division (Newbold College, U.K.), Southern Asia-Pacific Division (AIIAS, Philippines), North American Division (Andrews University and Walla Walla University, U.S.A.), and Inter-American Division (visiting professor at Montemorelos University, Mexico).

Dr. Melgosa has taught at the primary, secondary, and tertiary levels. He served as dean of the School of Graduate Studies at the Adventist International Institute of Advanced Studies (AIIAS), where he also went on to serve as president. Most recently, he served as dean of the School of Education and psychology and professor at Walla Walla University. He has been an accreditor with the Philippine Accrediting Association of Schools, Colleges, and Universities and for the Accrediting Association of Seventh-day Adventist

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Back row (l-r): Chandra Goff (Administrative Assistant, *The Journal of Adventist Education)*, Susana Schulz (Managing Editor, *Dialogue)*, Faith-Ann McGarrell (Editor, *The Journal of Adventist Education*), Esther Rodriguez (Administrative Assistant), and Beverly Robinson-Rumble (Editor Emeritus, *The Journal of Adventist Education*). Front row (l-r): John Wesley Taylor V (Associate Director), Luis Schulz (Associate Director, Retired), Lisa Beardsley-Hardy (Director), Hudson Kibuuka (Associate Director), and Mike Lekic (Associate Director). Inset: Julián Melgosa (Associate Director).

Editorial *Continued from page 3*

Schools, Colleges, and Universities (AAA). He is a citizen of Spain and the United States of America. His wife, Annette, is a librarian who coordinated two editions of JAE. The Melgosas have two adult children: Claudia, a veterinarian in New Mexico; and Eric, a graphic designer in California. Dr. Melgosa enjoys road biking, backpacking, and international cooking.

The GC Department of Education has set four goals for the quinquennium: (1) to strengthen Adventist mission and identity, (2) to increase student access, (3) to expand the capacity of all teachers to achieve the redemptive purposes of Adventist education, and (4) to strengthen leadership, accreditation, and boards. For K-12, the key ingredients are mission, students, teachers, and principals. In higher education, this translates to a focus on mission, students, professors, presidents, and boards. It's all about people.

To achieve these goals, the department operates several entities. The Accrediting Association of Seventh-day Adventist Schools, Colleges, and Universities functions as the denominational accrediting and quality assurance agency for Adventist educational institutions at all levels. The accreditation process draws on the expertise of hundreds of educators who share a passion for the mission of Adventist education. The department also operates the International Board of Education (IBE) and the International Board of Ministerial and Theological Education (IBMTE) to ensure that new institutions of higher learning and new programs meet minimum standards with respect to mission, academics, facilities, finances, and other standards.

The GC Department of Education promotes the Seventh-day Adventist philosophy of education through teacher conferences around the world, and through the production of two publications: The Journal of Adventist Education and *Dialogue* (for Adventist students in non-Adventist colleges and universities). The April/May 2015 issue of JAE showcased the world of Adventist education in a multicultural array.

In a few regions, K-12 enrollments are shrinking. But in most countries, we need more teachers. The challenge is to manage the demand for Adventist education amid steady enrollment growth. The single greatest need is for qualified teachers "who love children and can see in them souls to be saved for the Master."* The need is especially acute at the university level, where faculty in a wide range of disciplines must have doctoral degrees and be able to integrate a biblical worldview into their teaching and research.

Affordability continues to be a challenge to students. As schools grow in size and in the number and level of degrees they offer, the cost of an Adventist education rises. Work-study programs are insufficient or impractical for many who would like to attend an Adventist school but do not have the funds to do so. For larger families, the cost of enrolling several children in an Adventist primary school can strain the family budget beyond its capacity.

The number of campuses in urban centers has grown. These attract larger non-residential and graduate enrollments, including students of other faiths or of no faith at all. Here, the challenge is to maintain an atmosphere of Adventist values, ethos, and sense of mission. Our purpose is not to run a business but to foster balanced development that restores the image of God and prepares students for service in this life and the life to come. Urban campuses constitute both challenges and opportunities for ministry to the cities.

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We need your help and invite submissions to JAE that address these priorities (for writer's guidelines, see http://jae.adventist.org/authors.htm). Tell us what you or your school is doing to achieve the mission of Adventist education. Share research and examples of how students can afford to attend a Seventh-day Adventist school. We especially welcome professional-development articles for teachers, principals, and boards. What works? What have you learned that can help others? Theoretical submissions are accepted, but readers will especially appreciate ideas they can try in their own setting. We have set specific objectives for the four main goals. Review the list in the sidebar on page 46, and let us hear from you.

Lisa M. Beardsley-Hardy Ph.D., *is the newly re-elected Director of the Department of Education, General Conference of Seventh-day Adventists, Silver Spring, Maryland.*

* Ellen G. White, *Counsels to Parents, Teachers, and Students* (Mountain View, Calif.: Pacific Press Publ. Assn., 1913), p. 166.

GC Department of Education Goals for 2015-2020

1. Adventist Mission and Identity

A. Function within a biblical worldview and pursue a meaningful integration of faith and learning in all disciplines;
B. Give the Bible and the Spirit of Prophecy their commanding role in the operation of the school;
C. Educate the whole person within the framework of a balanced, redemptive education that develops the ability "to think and to do" and restores in students the image of their Creator†;
D. Through the AAA and IBE/IBMTE review processes:
   - Promote and guard Adventist essentials in all levels of education, particularly in graduate and professional programs;
   - Adhere to the Adventist philosophy of education in distance learning, delivery of intensives for non-residential cohorts, extension campuses, and urban campuses;
   - Maintain a consistent commitment to academic excellence, focusing on continued improvement with measurable goals;
   - Develop and implement spiritual master plans appropriate for the level and type of students;
   - Develop online survey tools and online submission of reports;
E. Use textbooks in harmony with Adventist philosophy of education;
F. Establish targets and benchmarks, and monitor statistics and trends in teacher and student Seventh-day Adventist membership;
G. Train missionaries in all disciplines;
H. Nurture Seventh-day Adventist students in non-Adventist higher education and partner with other GC departments (Chaplaincy, Children's Ministries, Youth, Family Ministries) to strengthen, through the divisions, the ministry of churches to all Seventh-day Adventist students. To accomplish this:
   - Equip students to handle the intellectual challenges related to faith that they face on a public campus and in academia and to increase access to *Dialogue* and other resources;
   - Monitor the preparation of future teachers and recruit teachers and other personnel needed for Adventist higher education (in line with our third goal);
   - Expand membership in the Adventist Professionals' Network (http://apn.adventist.org).

2. Student Access and Success

A. Address access barriers so as to increase the percentage of Seventh-day Adventist students in Adventist schools;
B. Strengthen the links between feeder schools from primary to tertiary levels;
C. Develop enrichment and articulation programs for students from lower socioeconomic status;
D. Develop K-16 education in Outer Mongolia and China, with a focus on theological education;
E. Increase opportunities for students to afford an Adventist education through:
   - Work-study programs;
   - Development of endowments and scholarships;
   - Development of institutional loan programs;
   - Promotion of canvassing work.

3. Mission-Focused Teachers

A. Expand the capacity of all teachers to achieve the redemptive purposes of Adventist education and to model Adventist values and lifestyle, and to increase, where needed, the percentage of Seventh-day Adventist teachers who work in the system:

Continued on page 46

Continued from page 44

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A. Strengthen leadership and administration, and demonstrate accountability and effective governance through robust institutional decision-making processes and structures, supported by journal articles, handbooks, board training workshops, and leadership conferences;
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Special Section:

Best Practices

Deadline for Submission: Continuous

What are best practices? How are teachers using them? How effective are best practices in making an impact on learning? THE JOURNAL OF ADVENTIST EDUCATION is launching a new section dedicated to vignettes that showcase best practices at work. The section will feature experiences of practitioners who have successfully implemented research-based best practices to solve a problem, enhance the learning environment, or stimulate and engage students.

We invite papers that describe how teachers are utilizing best practices in the classroom to engage learners, strengthen the curriculum, and help learners navigate the process of discovery. Each paper should clearly describe the learning environment, the best practice employed, the process of implementation, challenges and successes, data to support impact on the learners, school, and community (qualitative and/or quantitative), recommendations for good practice, and a list of helpful resources.

Critical thinking, problem-solving, active learning, and collaboration are all examples of research-based best practices that have been used to stimulate learners and invigorate classroom instruction. Many of these practices are approaches to instruction that teachers have used for generations. They are not limited or restricted to a specific grade level, and consistently help learners scaffold information, connect principles and ideas, and make applications. Overall, best practices strengthen the relevance of a given curriculum.

Additional best practice topics include the following:

- Approaches to balancing the curriculum.
- Strategies for integrating the curriculum.
- Strengthening teacher clarity and instructional clarity.
- Facilitating effective classroom discussions.
- Providing meaningful and constructive feedback.
- Utilizing formative assessments.
- Teaching metacognitive strategies.
- Differentiating instruction to meet various needs.

Review Process

Format: Papers, including references, charts, figures, and tables, generally should not exceed 5 pages, or 2,000 words. Submissions should be double-spaced, using 12-point type, and standard margin and paragraph indention. For additional information, visit http://jae.adventist.org/authors.htm#form.

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Good news! The steady growth of the Seventh-day Adventist Church and its institutions has created a demand for qualified personnel who can support its worldwide mission with their talents and education.

In response to this need, the General Conference has launched the Adventist Professionals' Network (APN)—an electronic global registry of Adventists who hold a college or university degree in any field and have an email address. APN assists Adventist institutions and agencies in locating candidates for positions in areas such as teaching, ministry, health care, management, administration, and research as well as consultants and personnel for mission service.

Once registered, APN members can find job opportunites in Adventist organizations, join one of many Adventist professional associations, and network with thousands of Adventist professionals around the world. Members are protected from solicitations and unwanted mail.

Enter your professional information directly in the APN secure website, free!

http://apn.adventist.org

Encourage other degreed Adventists to join APN and enjoy its many benefits.
For questions and comments on APN, contact us through apn@gc.adventist.org

TIMELINE

FOR SEVENTH-DAY ADVENTIST EDUCATION

Seventh-day Adventist schools are often described as the second largest church-operated network of schools in the world. The story of Seventh-day Adventist education, starting with its shaky beginnings as scattered, unofficial one-room classrooms in the mid-19th century and continuing to the 7,946 denominational schools, enrolling 1,942,828 students at all levels in 2014 is both amazing and thrilling. The timeline that follows is an attempt to pinpoint the milestones that mark that inspiring journey. The events and persons appearing below do not comprise a definitive list, but in various ways they figured significantly in the growth and development of Seventh-day Adventist education.

1853 In Buck's Bridge, New York, Martha Byington, daughter of future General Conference (GC) President John Byington, conducts the first-known church school for Sabbatarian Adventists.

1872 In Battle Creek, Michigan, Goodloe Harper Bell opens the first school sponsored by the Seventh-day Adventist Church.

Ellen White writes her seminal essay, "Proper Education," which appears in installments in *The Health Reformer.* She subsequently publishes a revised version as a testimony. (See *Testimonies for the Church*, volume 3.)

1874 Battle Creek College, the first Adventist college, begins as a co-educational institution in Battle Creek, Michigan, with Sidney Brownsberger as president. The General Conference organizes the Educational Society to oversee this new institution, which evolves into Emmanuel Missionary College (1901) and finally Andrews University (1960).

1881 Goodloe Harper Bell authors and produces the first Adventist textbook, *A Natural Method in English.*

1882 Adventists open their second college, Healdsburg College, now Pacific Union College, in northern California.

1883 A church school begins in Dronninglund, Denmark, apparently the first Adventist school outside North America as well as the first one in Europe.

Under the auspices of Dr. John Harvey Kellogg, Drs. Kate Lindsay and Ann Stewart establish the first Adventist school of nursing at Battle Creek Sanitarium in Battle Creek, Michigan.

1887 The General Conference creates the office of Secretary of Education and names W. W. Prescott to the position in addition to his responsibilities as president of Battle Creek College.

1888 The first denominational teachers institute convenes at Battle Creek.

The first step is taken toward Adventist education in the South Pacific when the Australasian Conference votes to establish a training school, which opens in 1892 in Melbourne, Australia.

1889 On the campus of Battle Creek College, the Ministers Bible School becomes the first attempt to offer an exclusive curriculum for Adventist ministers.

The Advent Review and Sabbath Herald reports that more than 30 students are attending school on Pitcairn Island, the first-known Adventist school in the Pacific islands.

1891 Approximately 100 people, including Ellen White, attend the

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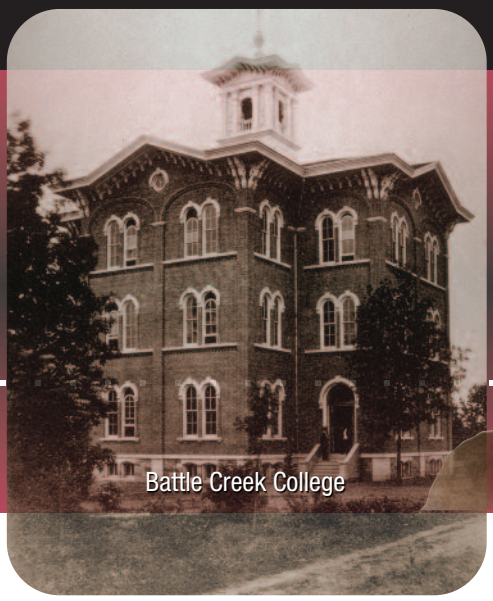
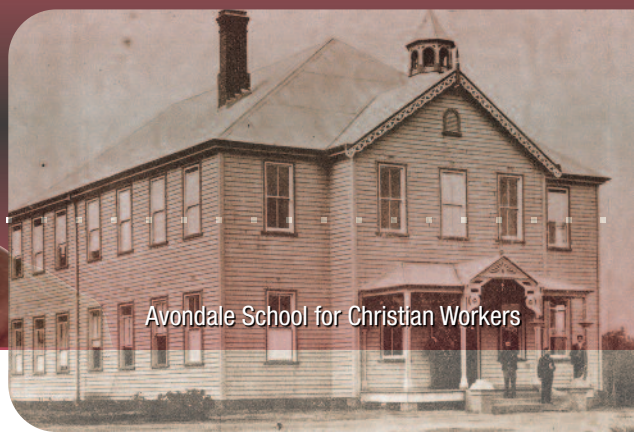

Battle Creek College


W. W. Prescott


Avondale School for Christian Workers

Harbor Springs (Michigan) Teachers Institute and inaugurate the first serious reforms in Adventist education, advocating that the Bible should be at the center of all curricula.

1892 Adventist education begins in Africa as the Claremont church school opens in Kenilworth, a suburb of Cape Town, South Africa.

1893 Claremont Union College, in Kenilworth, a suburb of Cape Town, South Africa, the first Adventist college outside the United States, begins classes.

Ellen White publishes *Christian Education*, the first book-length publication about the principles of Adventist education.

In Buenos Aires, Argentina, the first Adventist church school in South America begins operation.

Adventist education for native South Pacific islanders begins with the opening of a school on Raiatea, Society Group, in French Polynesia.

1894 The first Adventist school in Brazil opens in Gaspar Alto, Santa Catarina.

Adventist education enters the future territory of the Inter-American Division when (1) a kindergarten and elementary school begin together in Guadalajara, Mexico, and (2) a school opens in the Bay Islands of Honduras.

1895 Battle Creek Sanitarium establishes the first Adventist school of medicine, American Medical Missionary College, with John Harvey Kellogg as president.

James Edson White begins the first church school for African-Americans aboard the ship *Morning Star*, in Vicksburg, Mississippi.

Workers from South Africa and North America establish Solusi Mission in Matabeleland on 12,000 acres Cecil Rhodes granted them to educate Africans.

1896 Oakwood Industrial School opens in Huntsville, Alabama, as a training school for African-Americans after GC President O. A. Olsen personally leads a commission to prepare buildings and land.

Frederick Griggs heads the first Adventist elementary teacher-preparation program at Battle Creek College.

Adventist education enters India, the territory of the future Southeast Asia Division, when D. A. Robinson opens a school for Hindu girls in his home in Calcutta.

P. A. De Forest establishes a school of nursing at Institut Sanitaire, Basel, Switzerland, believed to be the first Adventist school of nursing outside North America.

1897 Avondale School for Christian Workers (now Avondale College of Higher Education) begins classes at Cooranbong, New South Wales, Australia, with C. B. Hughes as president.

E. A. Sutherland, president of Battle Creek College, launches the "Movement of '97," which represented the beginning of the organized system of Adventist elementary education in North America.

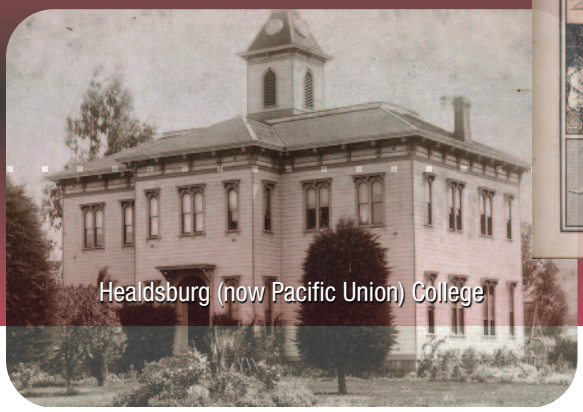
Christian Education, the first denominational education periodical, appears in July but ceases after two years. It reappears in September 1909 with the same title but as a new journal referred to as Volume 1, Number 1.

W. C. Grainger and T. H. Okahira establish the first Adventist school in the Orient at Tokyo, Japan.

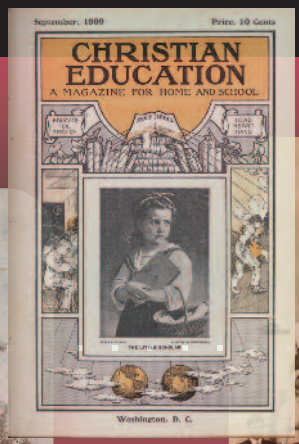
1898 At Las Tunas, Argentina, N. Z. Town founds the first worker-training school in South America. In 1900, Frank Westphal and other workers re-established the school at Diamante, Entre Rios Province, where it later developed into River Plate Adventist University.

The General Conference appoints a standing committee to work on textbooks for Adventist schools.

1899 Missionsseminar Friedensau, predecessor of Friedensau Adventist University, offers its first classes on an old estate, Klappermuhle, near Magdeburg, Germany.



Healdsburg (now Pacific Union) College



Washington Foreign Missionary Seminary people

1900 P. T. Magan begins a campaign to eliminate the debts of Adventist schools and other institutions. Ellen White donates the proceeds from the sale of *Christ's Object Lessons* to raise money for schools.

Teachers from North America's 220 elementary schools assemble at Battle Creek for the first institute for church school teachers.

1901 As a part of denominational reorganization, the General Conference creates the Educational Department with John Harvey Kellogg as chairman.

1902 George McCready Price publishes *Outlines of Modern Science and Christianity,* the first Adventist book proposing scientific support for creationism.

1903 Ellen White publishes *Education*, the leading source of Adventist philosophy of education.

Offering instruction in English in a school in Hong Kong, Ida Thompson establishes the first Adventist school in China.

1904 E. A. Sutherland and P. T. Magan launch the Nashville (Tennessee) Agricultural and Normal Institute, the beginning of the self-supporting educational movement in the American South.

In Canton, Ida Thompson founds Bethel Girls' School, the first Adventist school in mainland China, which later evolves into Hong Kong Adventist College. English schools exclusively for Chinese students had operated previously in Hong Kong and Hawaii.

Buresala Training School (forerunner of Fulton College) opens in Buresala on the island of Ovalau, Fiji.

1905 The Southern California Conference buys real estate that will become the College of Medical Evangelists (CME) and later, Loma Linda University (LLU).

The General Conference adopts a "harmonious system of education" that integrates elementary, secondary, and tertiary levels and articulates teaching materials and manuals. The Educational Department becomes the Education Department.

1906 Pacific Press Publishing Association in Mountain View, California, publishes the first Adventist church school manual.

1907 To meet the denomination's need for missionaries, the General Conference converts Washington Training College in Takoma Park, Maryland, into Washington Foreign Missionary Seminary, a school without academic classification. H. R. Salisbury is president.

Sam Yuk Shin Hak Tai Hak (Korean School for Boys), forerunner of Sahmyook University, opens in Soonan.

Pacific Press begins publication of the *True Education Reader Series*, graded reading books for Adventist elementary schools.

1908 The first Adventist school of nursing in Latin America, Sanatorio Adventista del Plata, opens at Puiggari, Entre Rios, Argentina.

1909 The College of Medical Evangelists (CME) receives a charter to operate schools of medicine and dentistry, and admits its first class of medical students.

Pacific Press publishes *Bible Lessons*, a graded series of elementary-level Bible textbooks authored by Alma Baker McKibbin.

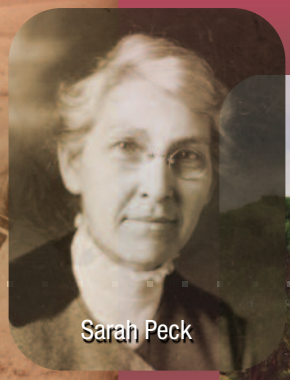
Frederick Griggs establishes Fireside Correspondence School in Takoma Park, Maryland. It later becomes Home Study Institute and eventually Griggs University.

1911 A "C" rating for the College of Medical Evangelists sparks a 25-year denominational debate about secular accreditation.

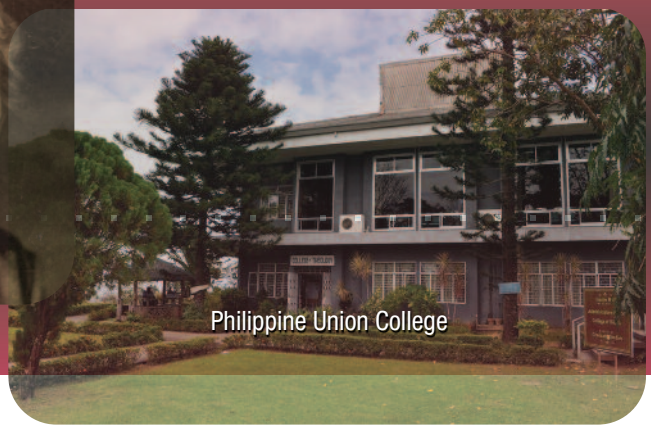
The first Adventist teachers conference in Australasia meets at Cooranbong, New South Wales.

In Hamadan, Iran, Hamadan Missionary School, the first-known Adventist school in the Middle East, begins.

Fernando and Ana Stahl



Sarah Peck



Philippine Union College

1912 Manuel Camacho collaborates with Fernando and Ana Stahl to build La Plateria Mission near Puno, Peru, the first of a system of schools that helped to transform the society of Andean tribespeople.

1913 Ellen White publishes *Counsels to Parents, Teachers, and Students,* her last lengthy statement about Adventist education.

1915 Adventist Seminary in Santo Amaro, a suburb of Sao Paulo, Brazil, starts classes. J. H. Boehm is director. The seminary later becomes Brazil Adventist University.

South India Training School opens in Coimbatore. G. G. Lowry is principal. The school evolves into Spicer Memorial College, and in 2014 is renamed Spicer Adventist University.

The North American Division approves a plan to have education boards in each union conference accredit its elementary and secondary schools.

1917 Philippine Seventh-day Adventist Academy opens in Pasay, a suburb of Manila. It develops into Adventist University of the Philippines.

1918 Denton Rebok conducts the first institute for Adventist teachers in China.

1919 West Indian Training School, the first permanent worker-training school in the Caribbean and forerunner of Northern Caribbean University, opens in Mandeville, Jamaica.

The Parent and Teacher Association organizes. In 1922, it becomes the Home and School Association.

Reflecting the growth of Adventist schools, the GC Department of Education divides its responsibilities according to specialty areas. O. M. John becomes an assistant secretary for secondary education.

1920 Sarah Peck becomes the first female member of the GC Department of Education, assigned to oversee elementary education.

1921 After 29 years of starts and stops, the permanent worker-preparation school for French-speaking Adventism, Seminaire Adventiste du Salève, opens at Collonges-sous-Salève in France (now Adventist University of France).

1922 The Far Eastern Branch of Fireside Correspondence School, the first branch of the church's correspondence school outside the United States, opens in Shanghai, China.

1923 The first world council for Adventist educators meets at Colorado Springs, Colorado, led by W. E. Howell, GC secretary of education.

1928 The Association of Seventh-day Adventist Colleges and Secondary Schools organizes with its executive arm, the Board of Regents, to accredit all Adventist schools.

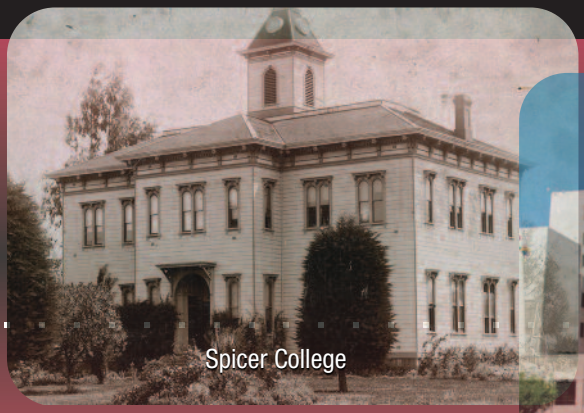
1930 The General Conference drafts a position statement on creationism and authorizes research and publication to refute evolution. Science and math teachers in North American colleges begin discussions about creationism.

1932 The church's Board of Regents accredits Pacific Union College, the first Adventist tertiary institution to earn denominational accreditation.

Philippine Junior College at Baesa, near Manila, becomes Philippine Union College, the first Adventist four-year degree-granting institution outside North America. In 1996, it becomes the Adventist University of the Philippines.

1933 The Northwest Association of Secondary and Higher Schools accredits Pacific Union College, the first Adventist tertiary institution to be regionally accredited.

1934 The Advanced Bible School, forerunner of the Seventh-day Adventist Theological Seminary, organizes at Pacific Union College (California).



Spicer College

Loma Linda University Medical Center

1935 History professor Everett Dick introduces the Medical Cadet Corps at Union College in Lincoln, Nebraska, to prepare Adventist young men for military service in the event of war. The corps later expands to include women.

1936 After a heated debate, delegates at the General Conference session approve regional accreditation for Adventist colleges.

1937 H. A. Morrison, GC secretary of education, conducts the second and last world council for Adventist educators at Blue Ridge, North Carolina.

The Advanced Bible School reorganizes as the Seventh-day Adventist Theological Seminary, a free-standing institution at the General Conference headquarters.

1939 Adventist College of Beirut, the only Adventist postsecondary institution in the Islamic Middle East and predecessor of Middle East College and Middle East University, opens with G. A. Keogh as president.

The Journal of True Education begins publication (the name changes to The Journal of Adventist Education in 1967). Editors: W. Homer Teesdale (1939-1946); Keld J. Reynolds (1947-1955); Richard Hammill (1955-1963); Thomas S. Geraty (1963-1970); Walton J. Brown (acting editor, 1970); Garland J. Millet (1970-1978); Victor S. Griffiths (1978-1990); Beverly J. Robinson-Rumble (1991-2014); Faith-Ann A. McGarrell (2014-).

1942 Colegio Agricola Industrial Mexicana, forerunner of Montemorelos University, begins at Montemorelos, Nuevo Leon, Mexico.

The General Conference authorizes the theological seminary to offer Master's degrees.

1944 Spicer College (Pune, India) becomes the second Adventist four-year postsecondary institution outside North America.

1946 Union College inaugurates the first Adventist baccalaureate program of nursing education.

1952 Philippine Union College, predecessor of Adventist University of the Philippines in Silang, Cavite, Philippines, becomes the first Adventist school outside the United States authorized to offer post-baccalaureate classes.

1953 The School of Dentistry at CME admits its first class of students.

The General Conference establishes the Master's degree as the standard academic preparation for ministers.

1954 Solusi Training School (Zimbabwe) becomes Solusi Missionary College, the first Adventist four-year postsecondary institution for Africans.

The era of international affiliations among Adventist schools begins with the affiliation of Australasian Missionary College in Cooranbong, New South Wales, Australia, with Pacific Union College.

International denominational accreditation begins when the Board of Regents extends its accrediting authority beyond North America.

1957 The General Conference reorganizes the theological seminary into Potomac University. It is the first Seventh-day Adventist institution to reach university status.

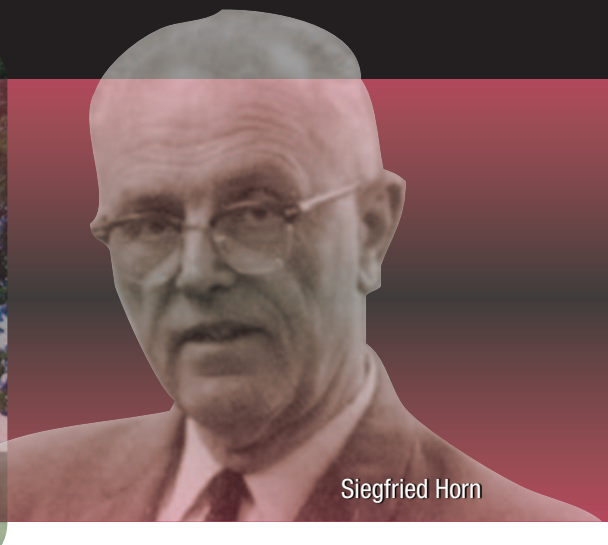
The General Conference establishes the Geoscience Research Institute.

Philippine Union College becomes the first Adventist institution outside North America authorized to offer Master's degrees (education).

1958 The General Conference approves the merger of Potomac University with Emmanuel Missionary College, Berrien Springs, Michigan. In 1960, the new institution officially becomes Andrews University, remaining on the EMC campus.

The College of Medical Evangelists becomes the first Adventist school to grant a Ph.D. (medical sciences).

Newbold College of Higher Education



Siegfried Horn

1959 Columbia Union College and Sligo Seventh-day Adventist Church, Takoma Park, Maryland, collaborate to send the denomination's first student missionary.

1961 The College of Medical Evangelists changes its name to Loma Linda University.

The General Conference establishes commissions on graduate education, applicable to schools in all world fields, including North America.

1963 Loma Linda University Overseas Heart Surgery Team begins to treat international heart patients in their home countries.

1965 Administrators of Adventist colleges and universities adopt a statement on academic freedom that prohibits classroom instruction contrary to Adventist teachings.

1966 The Academic Conference on Modern Church-State Problems convenes at Andrews University. Attendees challenge the traditional Adventist position on government aid to church-sponsored schools.

Adventist Colleges Abroad begins, and by 2014 had expanded to a consortium of 14 Adventist colleges and universities, mainly in North America, that supervises programs offering up to one year of intercultural education and language study for Adventist students on a dozen denominational campuses around the world.

1968 With Siegfried Horn of Andrews University leading, Adventist education actively enters the field of archaeology with an expedition to Heshbon, Jordan. Digs at other sites follow, with other Adventist schools establishing centers of archaeology and forming consortia to sponsor on-site research.

1970 Newbold College in Bracknell, Berkshire, England (now Newbold College of Higher Education), becomes the first postsecondary school outside North America to be accredited by the Adventist Board of Regents.

1972 The theological seminary at Andrews University offers its first doctoral program (doctor of ministry).

1973 The era of university status for Adventist schools outside North America begins when Colegio Vocacional y Professional in Montemorelos, Mexico, receives degree-granting authority from the state of Nuevo Leon and becomes Montemorelos University. The institution establishes the second Adventist school of medicine.

The General Conference establishes the Institutional Consulting Service (ICS) with Milton Murray, director, who promotes institutional fund-raising. ICS is later renamed Philanthropic Service for Institutions, which advocates permanent offices of development in secondary and postsecondary schools in North America and other world divisions.

The Educational Press Association (later renamed the Association of American Publishers) confers a Distinguished Achievement Award on The Journal of Adventist Education (JAE). Through 2015, the AAP and the Associated Church Press honor JAE 22 times for its professional quality and its contributions to education. Most of the awards were conferred after 1990.

1974 The General Conference begins to issue the Citation of Merit, Award of Excellence, and Medallion of Merit awards to persons who have made notable contributions to Adventist education.

1978 The theological seminary at Philippine Union College organizes into the first division-sponsored seminary outside North America.

1979 The South American Division establishes the Latin American Theological Seminary, a multi-campus institution headquartered in Brasilia, Brazil.

1981 The landmark case in Australia, Defence of Government Schools, legitimizes government financial aid to church-sponsored schools in that nation.

Zaoksky Theological Seminary

B. Lyn Behrens

C. Garland Dulan

1984 Loma Linda University affiliates with Kasturba Medical College near Manipal, India, to educate physicians and other health-care professionals.

Loma Linda University earns world attention when surgeons transplant a baboon's heart into Baby Fae. The case raises questions of medical ethics, but the surgery becomes the university medical center's first major step toward becoming a global leader in heart transplants for children.

1987 The General Conference Department of Education forms the Institute for Christian Teaching and initiates seminars in every world field to promote the integration of faith and learning.

1988 The Adventist University of Central Africa, in Kigali, Rwanda, which serves Francophone Africa, is accredited by the Rwandan government, thereby becoming the first government-recognized, degree-granting Adventist institution for Africans.

1989 The General Conference Department of Education launches *Dialogue*, a periodical published in four languages that discusses intellectual issues. It is sent to college and university students (mostly in non-Adventist universities) worldwide.

Zaoksky Theological Seminary, the first Adventist educational center in the Soviet Union, opens at Zaoksky. In 2003, it reorganizes as Zaoksky Adventist University.

The Far Eastern Division opens Adventist International Institute of Advanced Studies (AIIAS) in Silang, Cavite, Philippines, the denomination's first free-standing graduate school.

1990 Home Study Institute organizes its postsecondary offerings into Griggs University.

B. Lyn Behrens is the first woman to become president of an Adventist university (Loma Linda University).

Humberto Rasi is the first non-North American to become director of the General Conference Department of Education.

1991 The University of Eastern Africa Baraton in Eldoret, Kenya, receives a charter from the Kenyan government, becoming the first Adventist tertiary institution in English-speaking Africa with degree-granting authority.

1992 South Korea's Sahmyook College in Seoul, Korea, becomes Sahmyook University and adds a doctorate to its theology curriculum.

1994 The Church's Annual Council votes to place ministerial education under the jurisdiction of the divisions, with monitoring by the International Board of Ministerial and Theological Education.

River Plate Adventist University in Libertador San Martin, Entre Rios, Argentina, opens as the third Seventh-day Adventist medical school.

1995 The North American Division is the first world field to elevate the director of education to a vice president.

Robert Mugabe, president of Zimbabwe, officially launches Solusi University (formerly Solusi College) with degree-granting authority.

1996 The Accrediting Association of Seventh-day Adventist Schools, Colleges, and Universities (AAA) is incorporated. It replaces the Board of Regents, which had functioned since 1928 as the accrediting body of the General Conference Department of Education.

1997 The General Conference Department of Education begins to confer the Global Award in Adventist Education.

1998 The General Conference establishes the International Board of Ministerial and Theological Education, pursuant to the 1994 action placing minister-preparation programs under the control of the General Conference or a division.

1999 Worldwide enrollment in Adventist schools surpasses one million.

Adventist University of Africa

2000 The General Conference organizes a new Commission of Higher Education to develop a global plan for Adventist tertiary institutions.

Patterned after the Latin American Theological Seminary, the Inter-American Theological Seminary (IATS) begins official operations with classes offered on multiple campuses. IATS achieves full accreditation in 2011.

2001 In *Columbia Union College v. Clarke*, a federal court of appeals rules that Columbia Union College in Takoma Park, Maryland (now Washington Adventist University), may legally receive money from the state of Maryland, using the "neutrality" test rather than the "pervasively sectarian" legal test to determine the eligibility of church-sponsored colleges for government aid.

The number of Adventist elementary schools passes 5,000.

2002 The number of teachers in Adventist secondary schools exceeds 20,000.

2003 C. Garland Dulan is the first African-American to become director of the General Conference Department of Education.

2004 The Annual Council accepts a recommendation from the International Faith and Science conferences affirming traditional Adventist beliefs about creation.

2005 Classes begin at Adventist University of Africa in Nairobi, Kenya, which combines a residential institution with extension campuses to become the first Adventist free-standing graduate school in Africa.

2010 Lisa M. Beardsley (now Beardsley-Hardy) is the first woman to serve as the director of the General Conference Department of Education.

The Adventist University of Paraguay in Asuncion, Paraguay, is established and opened its doors to the first class of medical students.

North Brazil College in Belem, Brazil, is established and opened its doors to the first class of medical students.

2011 Griggs University, the denomination's correspondence school, moves from the General Conference to Andrews University, where it becomes the university's school for distance education in charge of off-campus programs, affiliations, and extensions, in addition to operating Griggs International Academy, a distance-education secondary school.

2012 Adventist Learning Community is established to provide a one-stop portal for all of the resources of the church as well as to provide a centralized distance-education portal that will combine Griggs, K-12, and all of the colleges and universities throughout the world church.

The School of Human Medicine is established at Peruvian Union University in Ñanã, Peru.

2014 Faith-Ann A. McGarrell is appointed to serve as editor of THE JOURNAL OF ADVENTIST EDUCATION.

Total enrollment in Adventist schools worldwide exceeds 1.8 million.

During the past quinquinnium (2010-2015), several new medical and dental schools have been established and authorized for operation. We have listed those schools that are currently in operation, recognizing that there are others still awaiting approval from either government or church entities.

Floyd Greenleaf, Ph.D., *a retired historian and author, spent 30 years at Southern Adventist University in both teaching and administrative positions. He has written numerous books and articles about Seventh-day Adventist history and education. Several of his books have been translated into Portuguese and Spanish for use mainly in the South American and Inter-American divisions. He writes from Port Charlotte, Florida.*

SOURCES AND ACKNOWLEDGEMENTS

The sources of information in this timeline are too numerous to list here. To provide readers with a sense of my research, the following is a summary of where I went to cull data. Walton Brown's *Chronology of Seventh-day Adventist Education* was a leading source for information, along with General Conference annual statistical reports, minutes for the General Conference Committee and the North American Division and its predecessors, division and union papers, recognized historical works, and institutional histories. Helpful leads to specific information came from Websites, especially those maintained by institutions. Telephone calls and e-mail exchanges helped with verification of some facts. Also of importance were suggestions by Beverly Robinson-Rumble, editor emeritus of *The Journal of Adventist Education.*

Supporting Education, Research, and Training

The expanding array of digital devices accessing the Internet around the globe provides new opportunities to collaborate in educating Adventist teachers and educational leaders to continue the teaching ministry of Jesus Christ in the 21st century. Partnerships among the *Curriculum and Instruction Resource Center Linking Educators* (CIRCLE), the *Adventist Learning Community* (ALC), and the *Institute of Church Ministry* (ICM) now connect more Adventists to education and training resources electronically than ever before.

Since 1999, CIRCLE has increasingly served as the "Google" of Seventh-day Adventist education. CIRCLE provides quick and easy access to resources uniquely created by and for Adventist education, as well as other materials recommended by Adventist educators for specific disciplines and levels. Funded by the North American Division Office of Education and supported by the General Conference Department of Education, CIRCLE is coordinated from the Andrews University School of Distance Education in Berrien Springs, Michigan, with servers hosted by Walla Walla University, College Place, Washington. Contracted Adventist educators manage and research resources within their area of expertise. Christian educational leaders, teachers, students, parents, and researchers can find and share resources in many formats. Website navigation in English, French, Portuguese, and Spanish is facilitating resource sharing globally. Resources in any language, for any level or educational discipline, and encompassing a biblical worldview are welcome.

The ALC is a new initiative of the North American Division Office of Education with the mission of equipping people with the passion and skills necessary to further the kingdom of Christ in the 21st century. Using strategies and pedagogy developed in tertiary distance-education programs, the ALC provides uniquely Seventh-day Adventist professional-development courses and resources that are available anywhere and anytime. The ability to search multiple Adventist databases simultaneously will provide church members, ministry leaders, and educators alike with convenient access to training and tools for any ministry anywhere.

The ICM conducts research and seeks to acquire research done by any entity on any aspect of Adventist ministry including education and missions. An Adventist human-subject-research online directory will provide quick and

circle
circle.adventist.org

Besides resources shared by Adventist educators, CIRCLE links to all items in:

- *The Journal of Adventist Education*
- *Dialogue*
- Institute of Church Ministry
- Institute of Christian Teaching
- AIIAS International Forum
- *TEACH* Journal of Christian Education
- Christian Spirituality and Science
- Geoscience Research Institute
- Canadian Teachers Network
- NAD Teacher Bulletin
- Division and Union Offices of Education online resources

Online: circle.adventist.org

BY GLYNIS BRADFIELD, ADAM FENNER, and PETR ČINČALA

in the 21st Century

ADVENTIST LEARNING COMMUNITY

Ministry Training and Teacher Certification Courses, new in 2015:

- Teaching & Preaching to Copyright
- Managing Your Digital Footprint
- School Board Membership
- School Board Leadership
- School Board Legal
- NAD Education Accreditation
- Philosophy of Adventist Education

Online: www.adventistlearningcommunity.com

INSTITUTE *of* CHURCH MINISTRY

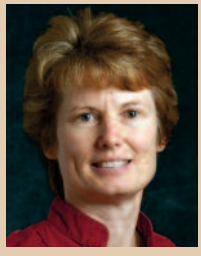
Top Adventist Research Projects 2010-2015, available through ICM:

- Seventh-day Adventist Youth Advise Their Church
- The Adventist Pastor: A World Survey
- Transmission of Values & Beliefs to Millennials
- Seventh-day Adventist Lifestyle Views
- Margin, Mission, or Both? The Viability of Selected Periodicals
- MegaStudies on NAD Local Churches
- Faith Communities Today: Interdenominational Reports

Online: icm.adventist.org/services

easy access to data sets, and academic and other publications that disseminate research findings and suggest practical applications for growing disciples in any setting. See the Website http://www.adventistresearch.org.

Data feeds make it possible to find research, education, and ministry resources through CIRCLE and ALC site searches. ICM is able to launch a Website using CIRCLE's data-management tools. The collaboration between CIRCLE, ALC, and ICM will make it easier than ever before for researchers, pastors, members, and educators to find and share resources to better serve where God leads, anytime, anywhere, for any level and kind of ministry.



Glynis Bradfield, Ph.D., *CIRCLE Director, enjoys facilitating collaboration that helps Adventist educators find resources to continue the teaching ministry of Jesus Christ. She also enjoys serving as the Director of Student Services and Assessment, Distance Degree Advising and Dual Enrollment for the School of Distance Education at Andrews University in Berrien Springs, Michigan.*

Adam Fenner, Ph.D., *Director of the Adventist Learning Community, finds satisfaction in coordinating the development of ministry training and teacher-certification courses that will make professional development a click away for lay members and church employees alike. He also enjoys teaching world history online for Andrews University.*

Petr Činčala, Ph.D., *is the Director of the Institute of Church Ministry and an Assistant Professor of World Mission in the Seventh-day Adventist Theological Seminary at Andrews University. With experience as an innovative pastor in the Czech Republic and a research project coordinator, he is passionate about making research findings available to church members online.*

Creating "Teach

Is anything more rewarding in a teacher's day than the "teachable moment" when all the students are listening and connected? It's the "aha" moment when students connect what they are learning with prior knowledge in significant and lasting ways. Students and teachers alike treasure these teachable moments, which help to validate the instructor's preparation and presentation. They change a routine assignment into an adventure in discovery.

Incorporating discrepant events into a lesson is a proven method to help create more of these teachable moments. In science classes, a *discrepant* event is a demonstration with an outcome that can surprise students and cause them to rethink their understanding of scientific concepts. Piaget,[1] Lawson,[2] and other researchers have recommended the use of surprise outcomes to stimulate assimilation and accommodation in student learning. The contrast between what students think will happen and what occurs in the teacher's demonstration creates a state of disequilibrium. This motivates students to learn the reasons for what they just observed.[3]

A discrepant event helps to focus students' attention and enhances concept retention. A growing body of research verifies the positive effect of non-static learning environments on students with learning differences such as ADD.[4] These students often struggle with lessons that are text-intensive or worksheet-driven. Discrepant events enable these students to use their hands to follow the procedures and their minds to answer the questions raised by the demonstration.[5] Because discrepant events lend themselves to face-to-face interaction, students learn by helping, sharing, and encouraging their peers' efforts to learn.[6]

The new North American Division Adventist science textbook series, *ByDesign: A Journey to Excellence Through Science* (grades 1-8), incorporates the concept of the discrepant event in the first two steps of its instructional model: "Engage" and "Discover." The text uses these steps to "Capture students' attention with a question that relates to the concepts being introduced in the lesson" and have "Students participate in one or more inquiry-based activities to explore the lesson concepts."[7] Steps 4 and 5, "Extend" and "Access/Reflect," help teachers expand the lesson concept into other subject areas, evaluate students' understanding of the concepts, and make spiritual applications.

Our Seventh-day Adventist schools afford us the opportunity and the responsibility to move our students beyond an understanding of the physical world. We have the privilege of using teachable moments to lead our students to see the connection between the observable creation and the Creator God in whom "is wisdom and strength."[8]

The following three discrepant events, which include materials, procedures, and explanations, facilitate teachable moments in a science classroom. The NAD *ByDesign* Standards and Next Generation Science Standards (NGSS), from the National Science Teachers Association (NSTA), are documented in each activity. The Cross-Curricular Extensions provide teachers with activities that make connections with other subject areas, while the Spiritual Applications connect the discrepant event with spiritual truths. Although these activities are targeted for middle-grade students (grades 5-8), they are easily

BY GARY F. BRADLEY

able Moments" in Science

Note to Teachers

Journaling is a powerful way to increase long-term retention of concepts.[9] These three discrepant events along with the accompanying spiritual applications and cross-curricular extensions are enhanced by journaling. Teachers can refer to the journals to assess their students' participation and concept mastery.

adapted to meet the needs of elementary and high school-level physical science and biology students.

Discrepant Event No. 1: Bernoulli's Table Tennis Ball

Objective: Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object (NAD *ByDesign* Physical Science Standards).[10] The motion of an object is determined by the sum of the forces acting on it; if the total force on the object is not zero, its motion will change (NGSS).[11]

Materials: Table tennis ball, hair dryer, and safety goggles.

Safety: Care should be taken when working with an electric appliance. Check to make sure the lab table and floor are dry. Remind students to always point the hair dryer away from faces. Use the cool setting on the hair dryer. This will not change the flight of the table tennis ball and will eliminate any potential discomfort caused by too-hot air.

Procedure: Place the table tennis ball on the table.

Ask your students to write in their journals or discuss what they think will happen when the hair dryer is turned on and pointed at the ball. Students will likely say that the air from the hair dryer will blow the ball across the table.

Turn on the hair dryer to the cool setting; point it at the table tennis ball. The ball will be blown quickly across the table.

Turn off the hair dryer, and ask the

students to discuss or write in their journals what will happen to the table tennis ball if it is placed above the hair dryer while it is pointed straight up. Students may say that the hair dryer will blow the ball away just as in the previous demonstration. This is a good time to have your students write what they have observed thus far in the experiment, and predict what they think will happen next.

Turn the hair dryer to the cool setting and then place the table tennis ball in the hair dryer's air stream while it is pointed straight up. The table tennis ball will hover above the hair dryer, bobbing in its air stream.

Try gently moving the hair dryer left to right. The table tennis ball will move with the hair dryer. Next, twist the hair dryer gently clockwise and then counterclockwise. The table tennis ball will move left and right of the hair dryer. Finally, try putting two table tennis balls in the air stream. Have your students write their observations in their journals.

Student Response: Students will be surprised to see the table tennis ball float in mid-air and seem to follow wherever the hair dryer is pointing. They will want to know why the ball reacts this way. This is the "teachable moment."

Explanation: Why does the table tennis ball float in the air? The upward pressure from the hair dryer balances the downward force of gravity, keeping the ball "levitating." The Bernoulli principle explains why the table tennis ball seeks to stay in the airstream of the hair dryer.

Teachable moments occur when students experience the surprise of a discrepant event.

This principle states that fast-moving fluids (air is considered a fluid) are at a lower pressure than slow-moving fluids. The airstream from the hair dryer is at a lower pressure than the air surrounding it, so the table tennis ball tends to stay in the moving air of the hair dryer.

Spiritual Application: Teachers can use this teachable moment as a spiritual lesson. For example, just as gravity pulls the table tennis ball down, things of this world will drag people down. A television program, video game, movie, substance, or something we couldn't watch or enjoy with Jesus should be avoided. God gives us power to rise above the pull of temptation just as the hair dryer gave the table tennis ball freedom to float above the ground. As the ball stayed in the air stream of the hair dryer, we stay connected to God by allowing Him to speak to us through reading the Bible, prayer, and following the Holy Spirit's prompting. We can follow God's leading in our lives just as the table tennis ball followed the movements of the hair dryer. King David knew about God's leading when he wrote, "Thy word is a lamp unto my feet, and a light unto my path."[12] Ask your students to write in their journals or discuss a time when they felt God leading in their life.

Cross-curricular Social Studies Extension: The Bernoulli principle is what the Wright brothers used in planning their first successful flights in 1903. Ask your students to try to imagine life without airplanes. How long would it take to get packages from across the country? How would people travel between continents? These questions can lead to a meaningful discussion or journaling activity on how air travel has dramatically changed our society.

Discrepant Event No. 2: The Super Tennis Ball

Objective: Ask questions and predict outcomes about the changes in energy that occur when objects collide (NAD *ByDesign* Physical Sciences Standards).[13] When two objects interact, each one exerts a force on the other that can cause energy to be transferred to or from the object (NGSS).[14]

Materials: Basketball, tennis ball, meter stick (100 cm/39 inches), and safety goggles for all students participating in the experiment.

Safety: CAUTION! The tennis ball will bounce energetically off the basketball. Consider going outdoors or using a room with a high ceiling for this discrepant event. Strongly emphasize to the students that they must only drop and never throw the basketball or the tennis ball.

Procedure: Have one student hold a meter stick vertically and a second student hold the bottom of the basketball at the top of the meter stick.

Ask the class to write in their journals how high they think the basketball will bounce (rounding off to the nearest centimeter) when dropped in free-fall. Answers will vary, but most students will be aware that no ball will bounce higher than its starting point.

Ask the first student holding the meter stick to measure how high the bottom of the basketball reaches on the first bounce.

Top and left: The students measure the rebound height of the basketball and the tennis ball.

Right: A student drops the basketball and tennis ball together in freefall.

Have the second student drop the ball in freefall.

Ask the first student (the one holding the meter stick) to tell the class how high the ball rebounded, to the nearest centimeter. Repeat dropping the ball in freefall and measuring the rebound height several times while the students record the rebound height in their journals. A properly inflated basketball will rebound to about half the original height.

Repeat this procedure (Steps 1-5), but this time use a tennis ball. Remind the second student to let the tennis ball freefall. Ask your class to journal or discuss their predictions about the rebound height of the tennis ball and record the height in several trials.

Ask the students to predict in their journals how high the tennis ball will bounce when it is placed on top of the basketball. Students will likely predict that the tennis ball will rebound a meter or less.

Have the second student place the tennis ball directly on top of the basketball, and then drop the two balls in freefall.

CAUTION! The tennis ball will bounce several meters high.

Ask students to write their observations in their journals.

Student Response: Students will be amazed to see the tennis ball bounce many times higher when dropped in

Students will be amazed to see that the tennis ball will fly several meters into the air, while the basketball doesn't bounce nearly as high.

freefall with the basketball than it did by itself. This is the teachable moment—students want to know why this occurred.

Explanation: Why does the tennis ball bounce so high? Repeat the tennis-ball-on-top-of-the-basketball drop, but this time, have students watch the basketball. They will observe that the basketball reaches only a small fraction of the height that it bounced when dropped by itself. The basketball transferred some of its kinetic energy to the tennis ball, causing it to bounce much higher than it would have alone. This is a demonstration of the law of conservation of energy. The tennis ball got an extra upward "push" from the basketball, which gave up some of its kinetic energy.

Spiritual Application: Teachers may use this teachable moment to focus on cooperation. They can ask their students to respond by writing in their journal or by discussing the question, "When have you helped someone accomplish something that he or she probably wouldn't have been able to do alone? Did you give something to this person—time, money, knowledge? Who has given you a boost? Parents, grandparents, friends?" Of course, Jesus gives us the ultimate opportunity. Because of His sacrificial gift, we can enjoy life more fully here on planet Earth and know that God has invited us to live with Him forever in heaven. An important prompt is, "What did Jesus do that gave us the opportunity to receive eternal life?" Teachers can have students read John 3:16 and then ask, "How can we work together with Jesus to help others learn about the wonderful gift that Jesus has given us?"

Cross-curricular Math Extension: The data students record during this discrepant event can be used as an application of the measures of central tendency: mean, median, and mode. Five or more data points work well for this activity. Using calculators will decrease response time. Ask students to recopy the data, arranging the numbers from lowest to highest in their journal. This will help them find the median (the value of the middle data point) and the mode (the data point that appears most often). Check whether your students understand that the mean is the average of the sum of all of the numbers divided by the number of data points.

Discrepant Event No. 3: The Newspaper Tree

Objective: Develop models to show that organisms have unique and diverse life cycles, but all share birth, growth, reproduction, and death in common (NAD *ByDesign* Life Sciences Standards).[15] Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors (NGSS).[16]

Materials: Newspaper, scissors, tape, safety goggles for each student.

Safety: Care should be taken when working with scissors. Remind students about safety procedures such as how to pass lab materials to a lab partner.

Procedure: Tell your students that they are going to design their own "growing plant." Just as real plants do, they are going to use a simple repeated process to create a "growing" structure.

Tape two newspaper pages together (at the short edges) using three small pieces of tape: one each at the top, middle, and bottom. (See the illustration on page 20.) Repeat this process to tape five pages of newspaper together, making one long row of pages.

Using the outside of a cardboard tube (such as a wrapping paper tube), roll up the newspaper.

Tape the end edge of the newspaper roll to the body of the newspaper in the middle.

Remove the cardboard tube from the center of the newly created newspaper tube.

Starting at the top end of the newspaper tube, cut straight down to the middle of the tube. Turn the tube a quarter turn, and make another cut from the top down to the middle. Do this two more times so there are four equal strips of newspaper that come halfway down the newspaper tube.

Gently lay the four pieces away from the opening of the newspaper tube.

Ask your students what they think the structure might look like. Students will probably not have an accurate idea of the new shape of their newspaper tube.

Hold onto the base of the tube with one hand while reaching into the center of the newspaper roll with the other hand. Using a gentle upward motion, pull on the newspaper strip closest to the opening to start the newspaper "tree" growing. Keep pulling to make the newspaper "tree" grow taller and taller.

Explanation: The newspaper tree is an example of how a simple object like a newspaper roll can be made into a beautiful and symmetrical object resembling a tree. This type of growing pattern is seen in the palmetto tree, Romanesco broccoli, and the chambered nautilus shell. The cells of plants and animals grow in spiral patterns, producing a self-similar pattern or one that is replicated. Ask your students to share other plants or animals that they have seen that have a comparable repeating growth pattern.

Spiritual Application: God made plants, animals, and people to grow in beautiful symmetry. Ellen White wrote: "Let the children learn to see in nature an expression of the love and the wisdom of God; let the thought of Him be linked with bird and flower and tree."[17] Ask students what spiritual lessons they can gather from this discrepant event. Compare the steady growth of plants with the importance of daily spiritual growth. Follow-up questions could include asking students how much time they spend studying their Sabbath school lesson, memorizing Scripture, or having devotions. Do they make regular prayer time (beyond just a food blessing) a part of their day? Students need to know that God is deeply interested in our lives and wants to spend time with us to help us grow to our full spiritual potential.

Top: Working together makes things easier.

Right: Starting at one end, the students make four straight and equally spaced cuts that stop at the middle of the roll.

Cross-curricular Health Extension: Ask your students to discuss or write in their journal ways that they have seen themselves grow physically. What are they able to do now that they couldn't do just a few years ago? Ask what they can do to help themselves grow physically. Share with your students the well-researched connection between healthful living and Adventist health principles. You may also want to introduce students to the eight natural remedies: nutrition, exercise, water, sunlight, temperance, air, rest, and trust in God (NEWSTART).[18]

My 110 Favorite Discrepant Events

A discrepant event can be found for most of the topics in the new *ByDesign* curriculum. "Discrepant Events for Science Teachers"[19] is a Web page with 110 discrepant events specifically created for science teachers. This site includes materials, procedures, and explanations. The discrepant events that I compiled and formatted have been evaluated for "wow" factor, safety, cost, and setup/cleanup. Feel free to use these discrepant events in your classroom!

Creating a Teachable Moment Environment

Teachable moments cannot be forced. But teachers can create an atmosphere in which they can occur. Discrepant events help to create teachable moments by causing students to ques-

Students love to make their newspaper tree grow. The newspaper "leaves" resemble spiraling self-similar growth patterns found in live plants and trees.

tion their understanding about science. Students want to find out for themselves why they were surprised by what they just saw happen.

We, as Seventh-day Adventist teachers, have the privilege and responsibility of taking these teachable moments beyond just a scientific explanation. We can connect science with social, moral, and spiritual lessons. Plan, present, and participate in the joy of creating a teachable moment in your next science class.

This article has been peer reviewed.

Gary F. Bradley, Ph.D., *is Assistant Professor of Education at the University of South Carolina Upstate in Spartanburg, South Carolina, whose area of specialization is teaching education and science methods. He previously taught science for 20 years to grades 6-12 in Adventist schools. Dr. Bradley enjoys presenting discrepant events at conferences, camp meetings, and in classrooms.*

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BY SCOTT MONCRIEFF and VANESSA CORREDERA

Thoughts on Teaching Potentially Controversial Narratives

Most Seventh-day Adventist English teachers who use literature in the classroom—and possibly narrative film—have faced variations of the following scenarios:

• Sarah,[1] after the first day of class, says, "In my family, we don't read fiction. Mrs. White said you shouldn't read fiction, so I can't read the Nathaniel Hawthorne story you assigned us."

• The principal says that Jason's mother read the story assigned for English and is concerned about what's going on in the classroom.

• A seminary student decides that some films selected for class use are inappropriate for student access in the library and writes a note of concern to the university president with a copy to the union president.

As Seventh-day Adventist teachers, we take such concerns seriously. English professionals must think through the pedagogical value of teaching fictional narratives in the classroom, anticipate some of the most common objections to such use, and beyond that, consider the appropriate use of material that may be somewhat challenging, controversial, or mature, in addition to its fictional nature. In this article, we first discuss reasons for teaching fiction in literature and film. We then turn toward a discussion of how to approach difficult content in the classroom, and how to discuss the teaching of this content with concerned parents, administrators, and constituents. For Tips on Selecting Fictional Materials, see page 25.

Why Teach Fiction?

The English curriculum at Adventist colleges and universities mandates that fiction is taught to English majors and general students enrolled in certain English courses. This was not always the case: In the 1920s, at least according to my [Moncrieff's] Adventist-educated great aunt, fictional narrative was *verboten*, even narrative poetry. In the 1950s and 1960s, the issue was contentious, but by the 1980s and 1990s, concerns about teaching fiction, particularly with regard to Ellen White's comments on the topic, were dying away. Since then, the issue will occasionally crop up.[2] This article will first identify several reasons for teaching fiction—primarily addressing literature, although some of the arguments also apply to film.

1. Narratives form a significant part of the literary legacy (a text's and/or author's cultural, aesthetic, ideological, and linguistic influence across time) of the best American, British, and world writers, be it Geoffrey Chaucer's poetry, the dramas of William Shakespeare, short stories of Nathaniel Hawthorne, Flannery O'Connor, and more recent authors such as Alice Walker, Tim O'Brien, Jamaica Kincaid, and Jhumpa Lahiri, or novelists such as Jane Austen, Charles Dickens, William Faulkner, Richard Wright, Toni Morrison, Zadie Smith, and Kazuo Ishiguro. These writers and many others around the world have created works of significant intellectual and artistic merit, as well as lasting cultural impact that repays diligent study.

2. Narratives are inherently interesting. They capture students' attention, and while this might also be true of amusement park rides, stories have a bigger learning upside as they draw students in and make complex ideas more accessible. Christ's use of narrative—the parable of the prodigal son, for example—serves as a helpful reminder of the way that stories speak to a broad audience and make sophisticated ideas understandable.

3. Stories allow us to empathize, to enter the perspective of another. As Christians, we are commanded to have compassion for others and to understand the ways others think.[3] Entering and examining the points of view provided in stories, as well as the implied point of view of the author, are basic skills developed by studying narratives. For instance, Zora Neale Hurston's strong use of accents and dialect in the novel *Their Eyes Were Watching God* (1937) immerses readers in African-American culture in Florida during the early 20th century. Moreover, by focusing on the African-American woman Janie Crawford, Hurston makes readers confront the particular difficulties facing an independent woman of color during this era.

4. Stories present conflict, which leads to consideration of choices and values, not as abstractions but in compelling, concrete contexts. Furthermore, stories allow students to consider situations, behaviors, and ethical concerns with a certain salutary amount of distance. They will be freer to discuss situations

involving "characters" than ones in their own lives, and more engaged than if they are discussing mere abstract principles. Thus, a discussion of the conflicting depiction of war in Homer's *The Iliad* (ca. 8th century B.C.)—where martial prowess is both celebrated and yet shown to cause unspeakable suffering—opens up a discussion about our own current attitudes toward the valorization of violence.

5. Stories can help students improve their interpretive skills, develop subtlety, and deal with ambiguity. Often, the best stories are those on which we have to meditate and return to because they challenge our comfortable way of thinking or allow us to consider a particular idea or issue in a new way. Like *The Iliad,* the film *The Hunger Games* (United States, 2012) presents a trenchant commentary on violence, specifically as a means of entertainment. Upon further consideration, however, students discern that the film also explores questions of gender, such as what it means for a young woman to be considered a hero, as well as questions of class, as seen in its representation of the way that the "haves" callously determine the fates of the "have nots."

6. Narratives help students develop critical thinking by encouraging them to go beyond their initial emotional reaction to a text in order to assess various facets of the narrative, including its structure, content, depiction of characters, and overall message.[4] Students may thus initially champion Hamlet's quest for revenge in Shakespeare's eponymous tragedy (ca. 1603), but after considering the entire play, especially the depiction in a performance or film of Hamlet's murder of Polonius and his influence in causing Ophelia's madness, they may be led to question Renaissance attitudes toward revenge.

Teaching Controversial Material

Additional concerns arise, however, when these narratives—whether in literature or in film—have challenging, controversial, or "difficult" content. One of the great values of narrative, as noted above, is that it introduces us in a captivating way to others' perspectives (both through authors and characters), their voices, and their points of view. Yet as our everyday lives demonstrate, others' experiences do not always neatly mesh with our own and can easily take us out of our comfort zones. The articulation of these experiences and points of view through narrative may thus involve coarse language, emotionally challenging imagery, interactions of a sexual nature, immoral behavior, or other facets that make the content of a text discomfiting. In fact, for some readers, anything that does not end on a positive note is troublesome. Furthermore, the issue resides not only with a book's or film's content, but also with the fact that what may prove quite comfortable for one reader or viewer may seriously offend another.

For some, the answer is simple: Do not teach narratives containing controversial content. Yet such an approach, we think, proves too limiting. The Bible itself holds in tension stories of beauty and hope with stories of a far more disturbing nature—the romantic and stirring marital expression of love in Song of Solomon with the tale of Lot and his daughters[5]; the sparing of Rahab due to her faith with the destruction of entire cities and people due to God's command[6]; and Christ's redemptive, selfless sacrifice with Lucifer's cunning, selfish deception.[7] Ellen White reminds us that human history is comprised of a Great Controversy, and just as the Bible manifests this controversy, so do our human-made narratives.[8]

We must remember that when an author includes difficult content within his or her work, he or she may not be doing so with an uncritical eye. It is quite possible that the author will frame a negative example, an example of human failing or frailty, in a critical light that helps the reader to see its folly. In the movie *The Help* (2011), for example, director Tate Taylor depicts racism in 1960s Mississippi but is clearly critical of those who espouse racist ideas. On the other hand, the writer may present a perspective with which readers only partly agree or which they reject, or which they haven't really considered before. All of these cases present us with an opportunity to learn significantly if we and our students apply critical thinking to the text.

That is not to say, however, that every book, television show, or film has inherent pedagogical value. As educators, we must thoughtfully and prayerfully use our judgment. As Francis Bacon says in his essay "Of Studies," "Some books are to be tasted, others to be swallowed, and some few to be chewed and digested: that is, some books are to be read only in parts, others to be read, but not curiously, and some few to be read wholly, and with diligence and attention."[9]

The same selective process can be applied to television shows and films. For example, it may not be appropriate to show students an entire episode of a World War II miniseries due to its graphic imagery. But a short clip may help communicate the loneliness and moral difficulties with which soldiers grappled, an emotion-laden concept not as accessible through a history textbook. Likewise, excluding the works of the important Chicana writer Sandra Cisneros from a global literature course because of sensitive, mature content may be difficult; however, Cisneros's most well-known works are collections of vignettes or short stories from which individual readings may be selected. Thus, a teacher may choose to assign a short story exploring a young woman's emotional distance from her Mexican family rather than one about a mature woman's affair.

Sometimes, however, because of specific pedagogical opportunities inherent to particular texts and films, we choose to use narratives that will include difficult content. In these cases, Bacon's words are especially helpful, and we can expand on them for further insight. These narratives must be read, taught, and discussed with diligence and attention.

Conversations between teacher and students are crucial, for the value of narrative texts, whether literary or televisual, lies in the fact that they provide a low-stakes site for students to grapple with the personal, social, political, and spiritual issues they (or their friends) will inevitably face. The Bible itself presents these tensions; they are omnipresent in the information that bombards students on a daily basis, from music to advertisements to the ideas held by their peers. Narratives allow for Christian educators to help mentor and shepherd their students as they confront new ideas, perspectives, and topics that will shape their worldviews. For maximum effectiveness in teaching literature, we need not avoid these topics but rather discuss them first in a Christian environment so that students are prepared to face them in a less-spiritual, at-times-combative en-

Take time to build respect and a rapport with students so that when challenging material is presented, they will be more likely to exhibit trust and respect the teacher's judgment.

vironment. This type of Spirit-led engagement can thus be a shaper rather than troubler of faith. As John Milton explains in his treatise *Areopagitica* (1644):

"Good and evil we know in the field of this world grow up together almost inseparably. . . . As therefore the state of man now is, what wisdom can there be to choose, what continence to forbear without the knowledge of evil? He that can apprehend and consider vice with all her baits and seeming pleasures, and yet abstain, and yet distinguish, and yet prefer that which is truly better, he is the true warfaring Christian. I cannot praise a fugitive and cloistered virtue, unexercised and unbreathed, that never sallies out and sees her adversary, but slinks out of the race, where the immortal garland is to be run for, not without dust and heat."[10]

Invoking the familiar Pauline metaphor of running a spiritual race, Milton describes the individual's spiritual journey as a race and the challenges to it posed by evil and its presence in the world as dust and heat.[11] If one does not confront evil's presence, he argues, one is not tested, and this is not true virtue at all. As Christian educators, we can use literature, television, and film as tools to prepare our students for this inevitable testing by giving them the Christian vocabulary and knowledge that will help them as they shape their ever-developing paradigms.

Tips for Selecting Fictional Materials

1. Consider the literary value of the material. Returning to Bacon's metaphor, is this a book one should chew, digest, or spit out? Is the author or text itself well-respected? Is it a required part of the curriculum? Evaluate the tradeoffs of mixed content, and be confident that the text adds value and depth to the course.

2. Be comfortable, confident, and unapologetic when teaching the material. A teacher does not have to agree with everything the author says, but if there is discomfort with the subject matter, students will sense this and be affected by it. Approach the text confidently, and students are more likely to trust that there is a thoughtful purpose behind the inclusion of a particular text or film, even if it is not apparent immediately.

3. Take the students' maturity into account. Educators at the secondary level are well aware that seniors may be able to handle a text that freshmen cannot. At the tertiary level, it would be wise to consider what might appeal to and be appropriate for the general-education student as compared to English majors. The latter typically have more training as textual interpreters and need additional opportunities to apply their skills; for this reason, they tend to be more flexible about reading and viewing assigned narratives.

4. Be thoughtful about when in the term to assign text with difficult content. Take time to build respect and a rapport with students so that when challenging material is presented, they will be more likely to exhibit trust and respect the teacher's judgment. For instance, in an introduction to film class, I [Moncrieff] might begin with something like the excellent *The Road Home* (China, 1998) and use something also excellent but more mature, like *Monsoon Wedding* (India, 2001) or *Goodbye Lenin* (Germany, 2003), later in the semester.

5. Consider talking with a fellow teacher or your department chair about a potentially difficult text, the reasons for choosing it, and any concerns. We have done this on several occasions and profited by the feedback we have received. Of course, this only works when you have a collegial, open, and respectful relationship with your colleagues.

Tips for Teaching Difficult Content

1. Prayerfully and thoughtfully read and vet the texts. Even if a text is part of a mandated curriculum, do not depend on word of mouth or another person's point of view. This may seem basic, but we have known teachers who failed to fully read a text, assigned it, and then were surprised by the content. Furthermore, when considering using a potentially difficult text read several years ago without a class in mind, have a fresh look at it. A text or film looks different when one is thinking about it in regard to a specific class context.

2. Consider addressing the tough issues head on. I [Corredera] am ambivalent about this because at times I think I risk bringing attention to an issue that my students did not identify as a concern. But I have found it very helpful to share with students that some of the texts in class may have difficult content. For example, when I introduced my New Global Literature course, I told students that global texts, particularly postcolonial texts, often confront the personal, psychological, and social aftermath of oppression, which means that they are not always the easiest to read. For example, Chimamanda Ngozi Adichie's *Half of a Yellow Sun* (2006) addresses the Nigerian civil war and Nigerian independence and thus depicts the horrors of genocide. I found it better to be upfront about these issues so that students could be prepared mentally and emotionally.

3. Prepare a thoughtful explanation for the texts chosen. Be able to articulate whether they address themes crucial to the course, whether they are authored by prominent and respected writers, whether they are considered an established part of a curriculum, etc. For example, I [Corredera] chose *Half of a Yellow Sun* because Adichie is a well-respected, award-winning author whose works are widely taught in global literature courses

and because this highly lauded, Orange Prize-winning, thoughtful novel perfectly encapsulated themes that were central to the course while adding a new text to our departmental curriculum.

4. Address the difficult content directly. Students often become frustrated if they are made to read difficult content and are not given an opportunity to discuss it. Thus, when my [Corredera's] students read Khaled Hosseini's *A Thousand Splendid Suns* (2007), a novel portraying the suffering of women in Afghanistan pre- and post-Taliban, I made sure to discuss the depiction of domestic violence and abuse against the two female protagonists, Laila and Mariam. In fact, I specifically asked students whether, if by reading this text, which frankly depicts the misogynistic brutality against Afghan women, we were participating in making violence against women a form of entertainment. This led to an incredibly productive, thoughtful conversation about the ethics of content and reading.

5. Last but not least**, be prepared to address and discuss how we consider difficult content as Christians.** Guiding questions include: Is this text's/film's content gratuitous or justifiable? How might a Christian perspective allow us to approach this text differently, with a unique point of view? What social, ethical issues might difficult content raise for us as Christians? These types of conversations allow students to begin developing their own approaches toward worrisome content found across a wide range of narratives.[12]

Tips for Discussing Difficult Content With Administrators and/or Parents

1. If at all possible, **begin conversations with prayer.** A confrontation over content runs the risk of feeling personal, as if one is being judged for the content selected. Prayer, in addition to invoking the ever-needful guidance of the Holy Spirit, helps defuse the situation and sets the appropriate tone and context for the ensuing conversation.

2. Be ready to explain your rationale. Just as a teacher should be able to communicate to students *why* a specific text has been selected, a teacher should be able to do the same for administrators and parents. Consider not only addressing the value of the text itself, but also how the particular challenging material (mature content, for example) can promote students' intellectual, personal, and spiritual growth.

3. Be prepared to address how the difficult content furthers the aims of Christian education. Point to the ethical value of a particular narrative; address how a story exposes students to the less-privileged experiences of others around the world; explain how a film forces students to confront problematic stereotypes about those considered Other; or explain how a text or film promotes equality or social justice. While the explanations may vary, be prepared to articulate the Christian value of a text just as readily as its intellectual or artistic value.

4. Be open minded and open hearted. Again, prayer goes a long way in helping create a productive dialogue about content. It is all too easy to dismiss those with concerns as too narrow-minded or ignorant. Instead, consider various ways to strike a balance between pushing a student to expand his or her thinking while at the same time being sensitive to individual concerns. Perhaps this will take the form of further one-on-one conversations, or it might mean an alternate assignment. These options can likewise be communicated to an administrator or parent. As mentioned earlier, colleagues or a departmental chair can be excellent resources for considering how to handle any confrontation over course material.

5. At the same time, **be prepared to defend the decision to strongly encourage a student to read or engage with a particular text**. Perhaps the text is crucial for the curriculum or necessary for anyone who has aspirations for graduate school. Perhaps not reading a particular text may compromise the student's ability to participate in and understand future assignments. Whatever the case may be, have a rationale for encouraging a student to complete the reading or viewing, or for suggesting (at the tertiary level) another section or course.

In conclusion, let us share with you what some of our students see as the value of reading potentially controversial material (keeping in mind that they were not aware of our article's points when we solicited these comments). Here are some of their responses:

• "Reading difficult texts has given me the ability to approach subjects which I previously may have felt uncomfortable discussing or been unable to discuss."

• "Christ's call to 'do unto others as you would have them do unto you' necessitates an experiential understanding of whomever that other may be. In order for me to understand how I would wish to be treated were I another, I must first understand my

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Other's perspective—a daunting task. . . . For me, literature helps fill in that epistemic gap. Reading controversial or difficult texts . . . grants me the gift of seeing the world from many perspectives."

• "I've benefited greatly by reading 'difficult' or controversial texts. As responsible, educated, and loving individuals, having certain exposure to the trials people experience allows us to be more empathetic. Literature can create awareness for those abused and marginalized, allowing us to shift our thinking for the better."

• "So much of the content that many deem 'objectionable' is present because it provides a more honest picture of a situation, experience, or person. Often, certain content is required to maintain the accuracy, impact, even poignancy of works—whether factual or literary fiction reflective of truth. We are called to engage with and witness to the world, and we can't do that from a safe and sanitized bubble."

Clearly, these students see reading difficult texts as not only improving their perspectives on the world around them, but also as part of their individual, Christian growth and mission. As educators, it is our responsibility to continue encouraging this development in the English classroom through the texts we choose to teach and discuss.[13]

This article has been peer reviewed.

Scott Moncrieff, Ph.D., *is a Professor of English at Andrews University in Berrien Springs, Michigan. He earned his doctorate at the University of California in Riverside, California, and is a specialist in Victorian literature with publications/presentations on the novelists Jane Austen, Charles Dickens, George Eliot, and Anthony Trollope. Dr. Moncrieff has dealt with difficult content in the novel as well as in his Understanding Movies class. He has also written on Adventist attitudes toward fiction and reviewed many Adventist novels for the* Adventist Review®.

Vanessa Corredera, Ph.D., *is an Assistant Professor of English at Andrews University. She earned her doctorate at Northwestern University in Evanston, Illinois. Her research explores how physiognomy shaped representations of social identity in Renaissance drama. She also studies depictions and intersections of race and gender in Renaissance drama and its modern adaptations. Her courses expand on these interests with their focus on gender, race, and class across Renaissance and modern texts. She has presented to both Andrews faculty and students about confronting difficult content in the classroom.*

NOTES AND REFERENCES

1. The names used in these scenarios are pseudonyms.

2. For those interested in reading more about this subject, see Scott Moncrieff's article in *Dialogue* or Keith Clouten's article in the April/May 2014 issue of *The Journal of Adventist Education* (which includes a helpful additional bibliography on the issue). Both articles are listed in the bibliography.

3. See Ephesians 4:32; Colossians 3:12; 1 Corinthians 13:4-7; and Romans 12:15.

4. For further thoughts on how narratives in particular help shape students, see Wayne C. Booth, "The Ethics of Teaching Literature," *College English* 61:1 (1998):41-55.

5. Take the mutuality expressed in the following verse, as well as the typological reference to Christ: "I am my beloved's / And my beloved is mine. / He feeds his flock among the lilies" (Song of Solomon 6:3). For the story of Lot and his daughters, see Genesis 19:30-36. All Bible references in this article are quoted are from the NKJV. Texts credited to NKJV are from the New King James Version. Copyright © 1979, 1980, 1982, by Thomas Nelson, Inc. Used by permission. All rights reserved.

6. For the story of Rahab, see Joshua 2:1-24. God's destruction of Sodom and Gomorrah is one of the most well-known examples of God's condemnation of a city. See Genesis 19:1-29.

7. Matthew 27:32-56 provides one example of Christ's sacrifice. For Satan's deception of Eve as the snake in the Garden of Eden, see Genesis 3:1-24.

8. See *The Great Controversy Between Christ and Satan* by Ellen G. White (Mountain View, Calif.: Pacific Press Publ. Assn., 1911).

9. Francis Bacon, *Essayes: Religious Meditations. Places of Perswasion and Disswasion. Seene and Allowed* (London, 1597), sig. B2v. Original spelling in quote is modernized for clarity.

10. John Milton, "Areopagitica," *John Milton: Complete Poems and Major Prose.* Merritt Y. Hughes, ed. (Cambridge: Hackett Publishing Co., 2003), p. 728.

11. Ibid.

12. See 1 Corinthians 9:24-27 and 2 Timothy 4:6-8.

13. We must acknowledge that while we have intended this advice to appeal to a broad audience, it may be complicated by the grade level a teacher instructs or the location where a teacher is employed. For example, a grade school teacher will most likely have to grapple with greater parental concerns and more varied maturity levels among students. Moreover, texts may be "difficult" in the more common sense of the word. Student A may be able to read Shakespeare's *Romeo and Juliet* and understand it (or at least, most of it), while Student B's reading level may preclude even the most cursory engagement with this famous tragedy. For teachers in certain parts of the world, issues may likewise differ. Without trying to overgeneralize, complex topics regarding Otherness, gender, class, and spirituality take on different dimensions across cultures. Moreover, if we return to the *Romeo and Juliet* example, a teacher may not simply have to confront the text, but he or she may also have to discuss with students the way that Shakespeare historically has been used as a pedagogical tool in the Colonial project of assimilation. We cannot address these nuances here, but we do hope that some of this advice can be helpful if even applied in the broadest way possible.

Aldo Sebastián Gaona eating lunch at the My Little Friends childcare center.

Promoting Healthful Habits and Food Preferences in Young Children

Many families today are unable to care for their children during the day because both parents work. Because of this, there is a need for the services of a nursery or childcare center for many small children. The childcare center My Little Friends, at Montemorelos University in Montemorelos, Mexico, aware of this need, provides loving care for children from 43 days to 4 years of age. This nursery, dating back to 1994, has developed a successful model for helping children and their families develop a taste for vegetarian food and healthful eating.

My Little Friends has tapped the expertise of professionals of the university's School of Health Sciences to develop a healthful program for children attending the center and to monitor the well-being of each child.

Mexico ranks first in the world in childhood obesity.* With this in mind, the diet at My Little Friends promotes the development of an ideal weight. Of the 145 children enrolled in 2013, five were overweight when admitted, but they all reached their ideal weight in less than eight months. Another child who was underweight when he came to the center also attained his ideal weight.

Rocio Velázquez, R.N., the founding director of My Little Friends, and Icela García, a registered dietician with 17 years of experience, are in charge of the diet promoted by the center. They share their success secrets.

Rocío, how do you develop a taste for healthful eating in children when they are still babies?

Rocío: It is very important to develop healthful eating habits in early childhood. When babies are six months of age, they are able to start eating a variety of vegetables and fruits, and this helps them develop a taste for healthful food and balanced nutrition. We know that food preferences develop at a very early age and influence our dietary tastes throughout life. Since the children eat breakfast and lunch at our center, they have many opportunities to develop good eating habits.

How do you know the taste of healthful food transcends the years of early childhood?

Rocío: We have the testimony of many parents. Often, when we meet parents and alumni in downtown Montemorelos, they express gratitude for the childcare services. What they remember most is the diet, especially the variety of vegetables. Parents speak of the "trees" (as we call broccoli in kindergarten) and how their children—now grown up—continue to eat fruits and vegetables even though some other family members do not. To consolidate these positive tastes and habits, we serve seasonal fruits and vegetables grown locally. Also, to awaken parents' interest in a healthful diet, we exhibit trays with the two meals children eat at the center. When parents and grandparents come to pick up their kids, they look at the tray and ask questions about the foods, and often ask for the recipes so they can make these dishes at home.

At the parent-teacher conferences, we offer recipes. Almost all parents are interested in vegetarian dishes. We know that many of the mothers use our recipes because they tell us when they were able to get good results or if they need further assistance to prepare a dish.

BY RAQUEL B. KORNIEJCZUK

Many parents ask us to recommend menu ideas for snacks or dinner meals that are not offered at the nursery. We provide them with healthful nutrition and attractive choices, teaching them that a kindergarten child at the nursery consumes 700 to 800 calories a day out of the 1,200 to 1,300 required. We strongly recommend offering fruits for snacks because we have noticed that parents do not regard fruit as a priority in selecting food.

Is the timing of meals important?

Rocío: Yes. Children arrive at the nursery between 7:00 and 7:30 a.m. We have breakfast at 8:00 a.m. and lunch at 12:30. When children leave the center at 4:00 p.m., they are hungry. Thus, we suggest that parents offer a healthful, nutritive snack and a lighter dinner later. It is better for children's health to go to bed early and let their stomachs rest.

Icela, how do you choose the menu for children?

Icela: The starting point for menu selection is the amount of nutrients needed daily for each age. We select a balanced diet that combines the proper amounts of nutrients and calories, carbohydrates, proteins and fats, vitamins and minerals. We take into consideration the typical Mexican dishes in order to plan a menu that goes along with the food preferences of our population. For example, for breakfast we offer milk, a main dish, a side dish, a seasonal fruit, and bread or tortillas. For lunch, there will be soup, a main dish, a side dish, salad, bread or tortillas, and a healthful dessert. The amount of food (portion) is calculated according to the child's age.

Do you take into account the appearance of the food?

Icela: Yes, it is important for the dish to be visually appealing, to smell and taste appetizing, and to have the proper consistency. Cold and hot foods are kept at the right temperature. We serve the food in pieces so the child can learn to use eating utensils. We make sure

Registered dietician Icela García teaches Sara Lilia Gaona to use eating utensils. Also shown: Miranda Vazquez.

that the dish combines pleasing colors that contrast attractively on the plate and attract the child's attention.

How do children react to new foods? Is it possible to promote a taste for new items?

Icela: The first time we introduce a new food to children, we ask them to try it once. Just once. Many children say they do not like new food, although they have not yet tried it. Once they have tried it, we say: "Now that was good, wasn't it?" If they say they don't like the food, we say: "OK, you don't have to eat it now. We'll try it again some other time."

We measure the acceptance of a new food by the amount of leftovers. If the dish is not attractive, we change its appearance. For instance, boiled cauliflower was not accepted at first. Then we made cauliflower patties in red sauce. This new presentation went over well.

We know that we must be patient in introducing new foods. Usually, we serve a new dish three or four times before deciding that it requires a new appearance. Some children, who tend to reject everything new, require more patience from their teacher. When children insist that they do not like one or two food items, we respect their individuality and replace that food with an equivalent. The important thing is that they do not develop food phobia. Understanding the reason for rejection makes it easier to find a solution. Rejection may be due to the consistency of the food. A different way of preparing the dish can solve the problem.

At the same time, it is important for the child to understand that there must be a balance between the development of habits and discipline and the acceptance of food. To successfully teach healthful eating habits, adults must be the ones who choose what a little child eats. Children may choose the amount of food they eat. Adults also determine eating times. The center's feeding system helps children who have trouble accepting food or eating schedules through the use of positive peer pressure. Children who join our childcare center want to feel accepted into their new social group, and thus are eager to learn the routines and relationships. Parents recognize that the diet promoted by the center makes a positive impact on the health of their children during the time spent at the center and at home.

Daniel Orozco Piedra enjoys lunch at the My Little Friends childcare center.

And what about children who eat slowly?

Icela: We provide sufficient time for each child to eat. Some kids eat faster, some slower. The slower ones receive more attention from the teacher at the table during the training time. Teachers help these children enjoy the rhythm of eating, concentrate on the task, and develop a similar pace to that of their classmates seated at the same table.

Do you also teach them table manners?

Icela: Of course! This is an increasingly important issue because many children do not eat at the table in their home, and some parents do not teach their children table manners. . . .

At the center, we teach children to always keep the table clean. If something spills, it should be cleaned up immediately.

Children are taught to sit quietly,

wait until everyone at the table has finished eating to get up, and to use napkins and utensils appropriate for their age. One-year-old children use spoons. Two-year-olds use spoons and forks, and 3-year-olds use spoons, forks, and infant knives. Children learn to use the appropriate utensils, to be properly seated, and to keep their plate right in front of them.

Four parents volunteered to join a conversation on the impact of My Little Friends childcare center on their families: Ana Julia Gaona, Sandra Aguilera, and Francisco and Laura Silva.

Ana Julia: I have a child, Aldo, who is 2-and-a-half years old. He has attended this nursery since he was 3 months old. In our home, we used to eat a lot of meat. We did not consider a meal complete without meat. But, since Aldo began attending the nursery, he learned that there are many healthy and tasty foods we did not know: broccoli, beets, lentils, chickpeas, et cetera. I wanted to try every new food my child was learning to eat. Now, we eat very little meat at home, and we eat lots of vegetables.

The childcare center's registered dietician, Icela García (left), and director, Rocio Velazauez, discuss the menu for the week.

Sandra: I have 14-month-old twins: Gerardo and Violet. They were born premature, and Violet was severely underweight. They started attending the nursery when they were 5 months old, and at that time Violet was still underweight. The nursery's diet allowed her to reach her normal weight very quickly.

Francisco: We have two girls, Paola and Maria Fernanda, 2 and 4 years old. The older one is enrolled at My Little Friends. At home, we used to eat meat at every meal, but soon after she began attending the childcare center, Paola told us she didn't want to eat meat anymore. She wanted vegetables and fruit.

Laura: When I was cooking rice, my daughter asked me what vegetables I was going to add because at the childcare center, she gets rice with veggies. I learned from her that rice with vegetables is a much more balanced dish.

How did you learn to prepare new dishes?

Ana Julia: Every day, I look at the menu displayed at the childcare center to see what my child will eat that day. By observing the menus there, I learned new meal options: a stew of chickpeas, bean salad with tomatoes. . . . Some friends have given me healthful recipes to try at home. Also, I visit health-food stores. I learned from the childcare center to eat oats, amaranth, and many other nutritious vegetables, grains, and seeds.

Sandra: I did not know how to cook. Icela, the childcare nutritionist, agreed to explain how to prepare the food they served at the center. One of my children is lactose intolerant. He learned to drink soymilk. Now everyone in the house drinks soymilk.

Laura: I thought that a healthful vegetarian diet would be more expensive than a non-vegetarian diet, but I soon realized I was wrong. With a small change, such as drinking water instead of soft drinks, we save a lot of money every month! I also learned to cook by looking at the menus displayed at the center, and trying the recipes they supplied. I am sure that we will keep this new diet at home. It is much more healthful than the one we had before!

The My Little Friends childcare center's registered dietician (left) discusses the week's menu with Sandra Aguilara, the mother of one of the children enrolled in the center.

Do you feel better as a result of eating a more healthful diet?

Ana Julia: I feel lighter when eating a vegetarian diet. I used to be very fond of pork rinds. It is a very harmful food. After trying a vegetarian diet, I cannot go back to my previous diet. I guess my body rejects so much meat.

Sandra: I have lost 20 pounds by adopting at home the diet suggested at My Little Friends. Now I eat vegetables. I didn't used to drink water, only soft drinks. Now I drink water every day. Before sending my children to the childcare center, we used to eat only junk food, meat, and chocolates. That was the normal diet of our whole family. But since my little twins started to eat healthful meals at the childcare center, I have tried nutritional dishes at home for my family. Now everyone enjoys a healthful diet.

Francisco: My family feels much better. Before sending my child to My Little Friends, my family drank four liters of cola per day. But one day, my daughter said that cola drinks were bad for our health. I did not know that! Recently, in my medical checkup, I noticed my cholesterol and high blood pressure had decreased. The doctor told me that my new diet is cleaning my body and helping my health.

This dialogue shows that even before little children can speak, they can recognize what food they like or dislike, and can influence the family. Food tastes are a personal matter, but they can be educated. My Little Friends is making a difference in the health of the children, families, and the community. ✎

Raquel B. Korniejczuk, Ph.D., *serves as the Academic Vice President of Montemorelos University, México. Her professional interests include Biblical foundations of education, curriculum development, and the impact of both on student learning. The My Little Friends childcare center belongs to Montemorelos University and is an educational service for the local community. Dr. Korniejczuk conducted this interview for* The Journal of Adventist Education.

* UNICEF, *Salud y nutrición (n.d.):* http://www.unicef.org/mexico/spanish/17047.htm. Accessed February 26, 2015.

HOW SAFE ARE THE FOOD AND BEVERAGES AT YOUR SCHOOL?

Introduction

Consider the following scenarios, both actual and potential:

• One afternoon, four students at a middle school start vomiting and complaining of stomach aches, nausea, and just not feeling well. The parents are called to pick up the ailing children and advised to take them to their family physicians. Subsequently, the infection is diagnosed as *E. coli*, and one student is admitted to the hospital for more than a week, while three others whose symptoms were less severe must remain at home while recovering. Public health professionals investigate, but cannot find a common source for the *E. coli* infections; however, they suspect that the children all ate food from a contaminated food source, perhaps at school.[1]

• In Japan, between 890 and 1,000 people became sick in January 2014 from eating food contaminated with the pesticide Malathion.[2] The amount of this pesticide in the infected foods was 2.6 million times the permissible level. (Symptoms of Malathion poisoning include nausea, vomiting, diarrhea, muscle cramps, weakness, and abdominal pain.) The source was frozen items: pizza, chicken nuggets, and croquettes—foods that are often served in school cafeterias or that children might bring to school in a lunch box.

• In late December 2013, three children from a middle school in Davidson County, North Carolina, contracted *E. coli*; one had to be hospitalized for more than a week.[3]

• A school cafeteria worker or food handler contracts some type of diarrheal infection. He goes to school as usual and prepares food without washing his hands properly, thus contaminating the food. Or, while changing a toddler's diapers, a childcare worker gets feces under her fingernails and fails to wash her hands properly before preparing a finger-snack for the young children in her care.

BY R. PATTI HERRING and PAMELA MUKAIRE

Every day at home, at school, and in many other locations, millions of people eat and drink food and beverages that could potentially make them sick because: (1) the food is contaminated at the source during shipping or storage; (2) they don't wash their hands and subsequently infect themselves and others; or (3) they eat food handled by people who didn't wash their hands and transferred an infectious agent. Thus, students and school personnel can get sick at school in various places and under a variety of situations. The contamination almost always occurs by accident and may be caused by bacteria or viruses, parasites, and/or a variety of toxic substances, some of which can cause catastrophic responses in the human body. For example, when salmonella gets into the intestinal system, it can cause flu-like symptoms (e.g., nausea, vomiting, abdominal cramps, diarrhea, or fever), and even serious complications such as kidney failure and death.[4]

Some food- and water-borne illnesses can linger for hours or days; others for months or even years and cause long-term consequences, including death. Unfortunately, there are no vaccines that prevent food-borne illnesses. Children are at particular risk of catastrophic reactions to these contaminants because they weigh less than adults and their immune systems are still developing.

Food-borne illnesses are largely preventable if foods are handled, stored, and served properly, and appropriate hand-washing practices are implemented. This article will discuss some of these preventive measures in detail and describe what school personnel should do to ensure food and beverage safety at their schools. Specific recommendations will be provided for teachers, administrators, food handlers, and parents.

Contaminated Food*

How Food Gets Contaminated

- During slaughter;
- Irrigated with contaminated water;
- Handled with unwashed hands;
- Cross-contamination;
- Insufficiently cooked;
- Stored at the incorrect temperature;
- Bacteria multiply to dangerous levels after expiration date.

Common Food-borne Diseases (Bacterial)

- *Campylobacter*
- *Salmonella*
- *E. coli* O157:H7
- Botulism

Common Water-borne Diseases

- Cryptosporidiosis
- Cholera
- *E. Coli* 0157:H7
- Hepatitis A
- Viral gastroenteritis

Symptoms of Food-borne Illnesses

- Diarrhea
- Abdominal cramps
- Fever
- Vomiting
- Headache

* http://www.cdc.gov/healthyyouth/foodsafety/pdf/preventing_foodborne_illness.pdf; http://www.mde.k12.ms.us/docs/teacher-center/eatingsafelyatschool_20140312143923_717581.pdf?sfvrsn=2; http://www.azdhs.gov/phs/olds/epi/waterborne/list.htm.

First Steps in Ensuring a Food-safe School Environment

In the United States, free breakfast, lunch, and after-school snack programs make it possible for children to get the nutrients they need throughout the day in order to better equip them to perform well at school. It is reported that the rise in food-borne illnesses in the U.S. could be due in part to the increasing need for schools to provide meals to children in need and the burgeoning number of children receiving these meals. Meals are provided through the U.S. National School Lunch Program (NSLP) and the School Breakfast Program,[5] which make it possible for children from low-income families attending public schools and even those in a large number of private schools to receive breakfast and lunch every school day; and a snack in after-school programs. Some local programs also provide meals for the families to eat over the weekends.

The United States is not the only country providing free meals to its school-aged children. The state government in India provides one of the world's largest free-meal programs, which reaches more than 120 million children. However, the parents of these children certainly did not expect that they would become ill and even die from consuming a meal at school. This in fact happened in July 2013, when 23 children ranging in age from 4 to 12 became very ill from eating lentils, potatoes, and rice contaminated with an insecticide. Thirty other children had similar but less-serious symptoms.[6]

Avoiding a Contaminated Food Outbreak at Your School

What Is an Outbreak? A food-borne contaminant ***outbreak*** (referred to also as "cluster" or "epidemic") occurs when two or more

people become sick after eating or drinking contaminated food or beverages from a common source, over a limited period of time.[7] The infection could occur at a school function where people shared a meal or treat, or ate contaminated food or a beverage from a common source. Botulism is the one exception to the "two-case rule" in that a single case is considered an outbreak since this disease can cause severe, life-threatening symptoms; its source is often home-canned foods that parents have brought to school for a dinner or party.[8]

What steps can you take to prevent food- and water-borne contaminants from making your students and staff ill?

Recommendations for Handling Food

Some schools have formal dining halls, while others provide areas where children can eat lunches they bring from home. Food supplied by the school should be prepared by people trained in safe food-handling practices—including the following: (1) careful preparation of food; (2) proper temperatures for cooking and reheating food; and (3) appropriate storage. Every school, including those that only provide areas where students can eat sack lunches, should prepare and distribute food-safety guidelines. Information should include the following areas: cleanliness and safe choices for bag lunches; proper storage techniques; and explicit instruction regarding proper hand washing (both after visiting the bathroom and before eating).

In smaller schools, teachers and other school personnel help prepare meals for students or help set up the area(s) where children eat. These persons must be vigilant to ensure that the food and food areas are clean, sanitary, and free of food-borne and water-borne contaminants (i.e., salmonella, *E. coli,* typhoid, and cholera). Cross-contamination can occur when meat juices or raw eggs come into contact with other foods or with cutting boards, sinks, or countertops. After food-service personnel prepare these foods, the surfaces they touched should immediately be cleaned with disinfecting, antibacterial agents before another food comes into contact with the surface.

The U.S. Centers for Disease Control and Prevention (CDC) has created guidelines that schools must follow to help reduce the risk of food and water contamination outbreaks.[9] This is not a one-person job—everyone must be alert and act promptly to protect the food and beverage integrity at school.

1. Inspect regularly, and consistently maintain a clean school cafeteria, kitchen, and eating area.

During inspections, look for evidence of insect infestations (cockroaches, flies, fruit flies, etc.), as well as rat or mice droppings (indicating the presence of rodents), dirt and grease buildup on the stove and in the oven (as well as on countertops, the refrigerator, and storage areas), and mold and/or mildew on moist surfaces (i.e., the inside of the refrigerator or freezer door). Just because it ***looks*** clean does not mean that it ***is*** clean and is not harboring germs or other dangerous contaminants.

To deal with insect and rodent infestations, hire pest-removal professionals, and make sure the cafeteria and eating areas are thoroughly and regularly cleaned. Don't forget the floor, the refrigerator and freezer (inside and out), cooking surfaces, and food-storage areas. After cleaning, all areas should be inspected again by public-health experts, who can give your eating area a safety stamp of approval. All food should be stored in insect- and rodent-proof containers; and salad bars should be covered with a plastic shield. Baked goods, salads, desserts, and fresh foods should not be left uncovered while being served.

Contaminated Food Outbreaks

How a Contaminated Food Outbreak Could Occur at Your School

- A parent provides food (e.g., cupcakes, filled doughnuts) for a classroom of children to celebrate her child's birthday.
- A Spanish teacher brings ethnic snacks so her class can celebrate Cinco de Mayo.
- On International Day, students are given the opportunity to taste foods from various cultures that have been supplied by school families and church members. These treats include either undercooked or improperly stored items made with milk, eggs, or meat products.
- The school holds a bake sale as a fundraiser.
- Concession stands sell food and beverages to spectators at athletic events or a school fair.
- Children and staff purchase food and drinks from vending machines in the school.
- Students bring their own lunches to school and share food with their friends.
- At residential/boarding institutions, dormitory students eat three meals a day in the cafeteria or dining hall. Even in day schools, the students (and staff) usually eat at least one meal a day on site.

People who eat or drink at school or at school-related events must rely on others' vigilance: preparing the food with clean hands, under sanitary conditions (using optimal hygiene practices), cooking the food properly, and storing it at the right temperature in protective containers.

This list was compiled by the authors and supported by resources available through the Centers for Disease Control: http://www.cdc.gov/Features/dsFoodborneOutbreaks/.

2. Ensure that food-service personnel and students consistently practice adequate hand-washing techniques.

Food-service staff and others who handle food must be vigilant in their personal hygiene habits, washing their hands after using the bathroom and before handling food, and between the handling of different foods. The Centers for Disease Control (CDC) encourage everyone to practice proper hand washing using soap and **hot** running water for at least 20 seconds; including washing between the fingers, under fingernails, and the back of each hand.

Similarly, staff should teach children good hygiene. If time is limited, provide them with antibacterial wipes or a hand sanitizer for cleaning their hands.

3. Clean surfaces, dishes, and utensils carefully.

Thoroughly clean all food preparation and eating surfaces, dishes, silverware (used for serving and eating), knives, countertops, pots and pans, and equipment used for food preparation, serving, and storing as well as refrigerators, freezers, stovetops, ovens, microwaves, and sinks. To sanitize surfaces, create a bleach solution by adding one tablespoon of liquid bleach to a gallon of water, put it in a spray bottle, and use it regularly on a variety of surfaces—particularly those that come into contact with raw meat, poultry, fish, or eggs.

4. General recommendations for handling and preparing food.

• *All food-service staff should be required to wear single-service plastic gloves and hair nets and to wash their hands regularly,* especially after going to the bathroom. Soap and hot running water should be available near the food-preparation area.

• *Employees who handle raw poultry or meat should not also be assigned to work with young children, particularly if the childcare includes feeding and changing diapers.* Cross-contamination (both ways) is of grave concern.

• *In areas without potable running water, water used for drinking and cooking should be boiled for at least one minute (or treated with tablets) before using.* Avoid using ice made from unsafe water, and ensure that bottled drinks served in the dining room and vending machines have sealed tops—if not, they may have been refilled with contaminated liquids.

• *If proper sewage disposal and pure water are not available, avoid serving green tossed sal-*

Preventing Food-borne Illnesses

COOK:

• Thoroughly cook foods at the temperatures that have been proven to kill bacteria and other organisms. The recommended temperature for meat (145º-165º F; 62.7º-73.8º C), poultry (165º F; 73.8º C), and eggs (145º F; 62.7º C);

• Use a thermometer to test the internal temperatures of food;

• When reheating food, bring it to least 165º F/73.8ºC;

• Keep hot foods hot (135º F/57.2º C or higher);

• Cook food immediately after defrosting;

• Do not defrost food outside of the refrigerator.

SEPARATE:

• Use different containers, dishes, and utensils for raw and cooked foods;

• Wash hands, utensils, and cutting boards after they have been in contact with raw meat, poultry, or eggs and before they touch another food;

• Put cooked meat on a clean platter;

• Separate fruits and vegetables from meats when preparing or storing.

CHILL:

• Keep food refrigerated at a safe temperature;

• Refrigerate leftovers as soon as possible;

• Set refrigerator temperature at 40º F (4.4º C); freezer temperature at 0º F (-17.7º C);

• When preparing large amounts of food, separate them into smaller amounts so they will cool more quickly;

• Keep purchased food chilled en-route from the store; carry a cooler in your vehicle, particularly in hot weather.

CLEAN:

• The *single most important* method of preventing infectious diseases is proper hand washing—before preparing food, between types of food, after preparation, and after going to the toilet;

• Wash fruits and vegetables under running water;

• Remove and discard outer leaves from lettuce and cabbage;

• Regularly clean and disinfect the refrigerator and freezer;

• Disinfect countertops and sinks regularly, using one tablespoon of bleach to a gallon of water.

REPORT:

• Report suspected food-borne infections to the proper authorities.

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* http://www.cdc.gov/healthyyouth/foodsafety/pdf/preventing_food borne_ illness.pdf.

ads made with fresh vegetables; instead, serve only cooked vegetables and fruits or those that have been washed and peeled on site. Generally, water that has been treated with chlorine or iodine is safe to drink. **Experts recommend as safe practice—"Boil it, peel it, cook it, wash it, or forget it"**[10] to prevent the spread of food- and water-borne diseases.

• *Wash all vegetables and fruits carefully, even if they will be cut and peeled before serving.* Cutting and peeling can spread bacteria from the skin to the fruit inside if the item is not thoroughly washed. Washing thoroughly will also remove harmful insecticides and other agricultural pollutants.

• *Separate; don't cross-contaminate.* Even carefully washed and sanitized surfaces, food, hands, and food-preparation utensils can be contaminated by improper handling of raw meats, poultry, seafood, and eggs. If these foods are contaminated, the bacteria can spread to clean surfaces unless the items are kept separate and handled appropriately. Meat products should be stored in designated containers to avoid cross-contamination of other foods. Food-service employees should use separate plates, utensils, cutting boards, and even pots and pans for uncooked produce, meat, poultry, eggs, and seafood, and sanitize surfaces used for preparing these foods before beginning to work with other foods on the surfaces. It is also a good idea to keep raw meats, poultry, seafood, and eggs separate during shopping, transportation, and storage.

• *Be extra vigilant when transporting, storing, and serving food for a picnic or other outdoor event.* Buy sufficient ice to keep foods at a safe temperature.

• *Throw away bulging or leaking cans and any food that smells spoiled.*

5. Maintain safe food temperatures for cooking, serving, and storing.

If animal products are used, they may be contaminated with salmonella (and other bacteria).[11] Because of the danger of food poisoning, people should not eat, and schools should not serve, raw or undercooked foods (especially meats, eggs, poultry, fish, or seafood) or foods containing raw eggs or raw (unpasteurized) milk. Ground meats are of particular concern, as bacteria may have been introduced into them at the processing plant. These concerns can be minimized by serving a vegetarian diet at school. Be alert to the presence of raw eggs in purchased foods such as cold soufflés, mousses, chiffons, homemade mayonnaise, Hollandaise sauce, Caesar dressing, homemade salad dressings and ice cream, cookie dough, frosting, etc.[12]

Hot foods must be kept hot (>140° F or 60° C) throughout the serving time; leftovers should be promptly refrigerated at (< 40° F or 4.4° C). Insert a food thermometer into the center of the food to ensure that it has reached a safe temperature before serving, and remains within the acceptable range during storage and while on the serving line. For example, for whole meats, the internal temperature should be at least 145° F (62.8° C); the CDC recommends that ground meats be cooked until they reach a temperature of at least 160° F (71.1° C); poultry

Is Food Safe to Eat After Its Expiration Date?

Dates stamped on food packages help the distributor determine how long to display the product on the shelf. According to experts, it is not a safety date.[1] However, these dates do help consumers know the time limit by which to buy or use the product in order to ensure optimum quality.

A "sell-by-date" or "open-dating"

This type of dating is found on perishable products (i.e., eggs, meat, poultry, and dairy products). After the date stamped, while the quality of the food may have deteriorated, refrigerated products should still be safe for a short time if handled properly and kept at 40° F (4.4° C) or below.

"Closed" or "coded" dating

This type of dating is used on cans and boxes of food with a long shelf life. Canned foods are safe for an extended period as long as they are not exposed to temperatures below freezing or above 90° F (32° C). High-acid canned foods (tomatoes, fruits) will retain their quality for 12 to 18 months; low-acid canned foods (meats, vegetables) for two to five years.[2] If cans are dented, rusted, or swollen, they should be discarded.

"Best if used by [or before]" dates

Manufacturers use this type of dating to ensure that consumers get the best flavor and quality product. It is not a purchase-by or safety date.

Experts recommend to follow the instructions on products with a "use-by" date. For items with a "sell-by" date or no date, cook or freeze within a reasonable time using the recommendations on the package. Keep in mind that opened cans and jars will spoil sooner than those that remain sealed. Food-borne pathogens can multiply in improperly handled and stored foods before or after the date stamped on the package.

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should reach 165° F (73.9° C). Eggs should be cooked until the yolk is firm. Food cooked or reheated in a microwave should be heated until it reaches 165° F (73.9° C).

Remember that even foods such as fish that are eaten uncooked should always be kept at a safe temperature. We would caution against eating raw fish or shellfish, which may contain industrial pollutants and heavy metals, and have a significant risk of bacterial contamination.

Thaw or marinate food in the refrigerator or in the microwave, never in the sink or on the countertop at room temperature. Plan ahead because it will take longer to thaw foods in the refrigerator.

Power outages may cause refrigerated and frozen foods to thaw. FoodSafety.gov provides guidelines for dealing with such foods: "Thawed or partially thawed food in the freezer may be safely refrozen if it still contains ice crystals or is at 40° F (4.4° C) or below. Partial thawing and refreezing may affect the **quality** of some food, but the food will be **safe to eat."**[13] An appliance thermometer in the refrigerator makes it easy to tell whether food is safe. If it reads 40° F (4.4° C) or below, the food is safe and can be refrozen. *When in doubt, throw it out.*

The Food Safety Council issues policies regarding how to deal with food that has remained in the danger zone between 41° F to 140° F (5° C to 60° C) for an extended period, which encourages the rapid growth of bacteria. If the food has been stored within this temperature range for less than two hours, it can be safely refrigerated; if between two to four hours, it should be used immediately; and if it has been kept in the danger zone for more than four hours, it should be discarded.

6. Preventing the spread of communicable diseases and parasites.

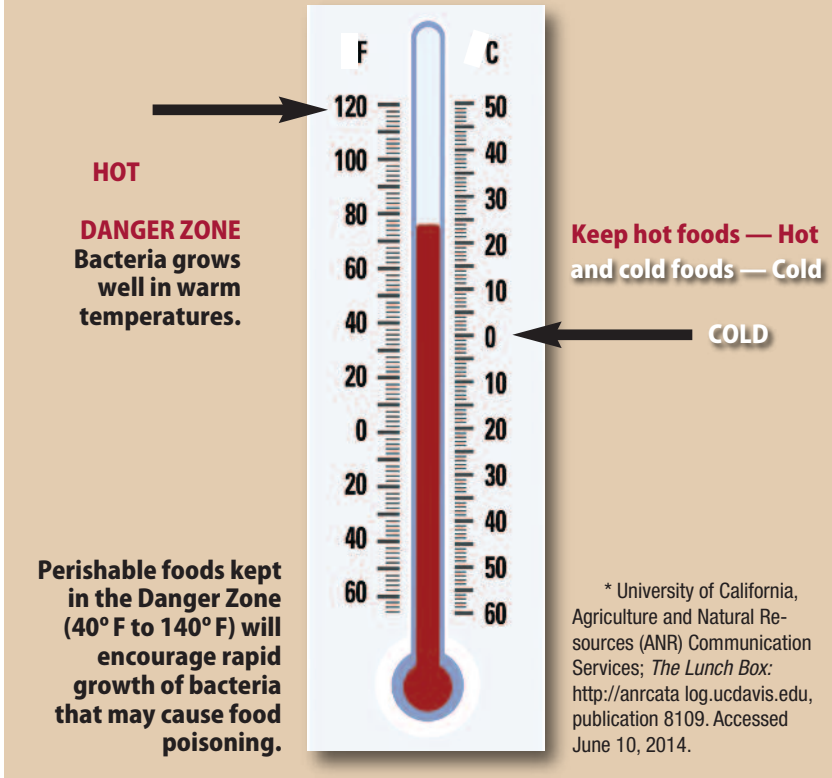
Food-service workers with communicable diseases (e.g., *Salmonella*, typhoid, tuberculosis, flu) should not prepare food or pour water for others until they have submitted a doctor's note stating that it is safe for them to return to work.[14] Many health departments require that restaurant workers with *Salmonella* provide a stool test showing that they are no longer infected before they can return to work.

Several parasites (*Giardia duodenalis*, *Cryptosporidium parvum*, *Cyclospora cayetanensis*, *Toxoplasma gondii*, *Trichinella spiralis*, *Taenia saginata* [beef tapeworm], and *Taenia solium* [pork tapeworm]) have emerged as significant causes of food-borne and waterborne illness. These tiny organisms get their sustenance and defenses from other living creatures known as hosts. Many parasites are transmitted from host to host (animal to person, person to animal, or person to person) through the consumption of contaminated food and water (and even soil), or contact with the feces (stool) of an infected host. In developing countries, "a wide variety of helminthic roundworms, tapeworms, and flukes are transmitted in foods such as: undercooked fish, crabs, and mollusks; undercooked meat; raw aquatic plants such as watercress; raw vegetables that have been contaminated by human or animal feces. Some foods are contaminated by food-service workers who practice poor hygiene or who work in unsanitary facilities."[15] Parasites can cause symptoms ranging from mild discomfort to incapacitating illness and even death.

Germs and parasites need three things to breed and spread: (1) a source or hospitable environment; (2) a route or a vector (human or animal) to carry the germ or parasite into/onto the victim's body; and (3) a destination or a host (a human or an animal that is susceptible to infection and illness). Maintaining a clean environment makes it harder for parasites or germs to live and breed. Use the same precautions given in this article for food preparation and storage, and water safety to prevent the

Danger Zones*

In 1 to 2 hours, bacteria that cause food-borne illnesses can grow quickly at temperatures above 90°F (32.2° C), making food unsafe to eat.



* University of California, Agriculture and Natural Resources (ANR) Communication Services; *The Lunch Box:* http://anrcata log.ucdavis.edu, publication 8109. Accessed June 10, 2014.

• Food packed in a lunch box should be kept hot—above 140° F (60° C) or cold—below 40° F (4.4° C).

• High temperatures will kill bacteria, and low temperatures will slow the growth of bacteria. Remember—keep hot foods hot, and cold foods cold.

spread of germs and parasites: (1) Boil water or use treatment tablets if the water might not be safe; (2) avoid cross-contamination; (3) follow the guidelines for fresh fruits and vegetables; and (4) practice good hand-washing technique, particularly after touching animals. Other general precautions: (1) Use appropriate sanitation for toileting (do not use ponds or rivers). If it is necessary to defecate outside in the bush, bury the feces, and then wash your hands carefully with soap and water (or use hand sanitizer); (2) avoid walking in dirty puddles and wading or swimming in water likely to harbor dangerous organisms; (3) tell children to avoid areas frequented by animals (i.e., dog parks); (4) remove animal waste promptly from the school grounds.

Quick Tips for Storing Foods Safely*

- Freeze or refrigerate perishable foods right away.
- Keep your **refrigerator** at or below 40° F (4° C) and **freezer** at 0° F (-18° C). Check temperatures with an appliance thermometer (generally inexpensive) on a regular basis.
- Use ready-to-eat foods as soon as possible.
- Be attentive to spoiled food. Anything that smells or looks questionable should be thrown out. Mold indicates spoilage and can grow even in the refrigerator. Discard moldy food.
- Be aware that food can make you very sick even when it doesn't look, smell, or taste spoiled.
- Food that is properly frozen and cooked is safe. Food that is properly handled and stored in the freezer at 0° F (-18° C) will stay safe. Although freezing does not kill bacteria, it does stop it from growing.

* U.S. Food and Drug Administration, "Protecting and Promoting *Your* Health": http://www.fda.gov; _____, "Are You Storing Food Safely?": http://www.fda.gov/ForConsumers/ConsumerUpdates/ucmo93704.htm. Accessed September 7, 2015.

Training and Continuing Education for Food-Service Employees

In March 2015, the U.S. Department of Agriculture (USDA) released professional standards for school food-service personnel, which included "hiring standards for the selection of State and local school nutrition program directors, and requires all personnel in the school nutrition programs to complete annual continuing education/training. These regulations are expected to result in consistent, national professional standards that strengthen the ability of school nutrition professionals and staff to perform their duties effectively and efficiently."[16]

The new rules are intended to ensure that school nutrition professionals who manage and operate the National School Lunch Program (NSLP) and School Breakfast Program (SBP) "have adequate knowledge and training to improve the quality of school meals, reduce errors, and enhance Program integrity." The USDA's professional standards include minimum educational requirements for new state directors and school nutrition program directors, and annual continuing education/training requirements for all school nutrition personnel.[17] Effective July 1, 2015, all new personnel (i.e., nutrition managers, nutrition-program directors, full- and part-time nutrition staff, and current personnel) must have the required training. Current staff, who will be grandfathered in, must obtain the required continuing education thereafter. The training must cover such topics as how to prevent food contamination, the proper heating and cooling methods for food preparation and storage, use and care of food thermometers, and adequate cooking temperatures. The food-handler training and continuing-education requirement "is expected for all employees at the local level." There are various educational, training, and continuing-education requirements, depending on whether the school nutrition person is a program manager, director, or full- or part-time staff.[18]

It does not appear that Adventist schools or other private schools will be required to adhere to or enforce these strict hiring and educational standards, food-handling training, or continuing education/training unless they participate in the NSLP or the SBT. But it would be prudent for our schools to adopt, if not all of the hiring standards, at least the ones requiring that each person working with food at school complete food-handling training and annual continuing education to ensure food and beverage safety at our institutions.

A variety of training resources are available: Online courses (*Public School WORKS* has released a new online training course titled "Food Safety for Food Handlers"),[19] in-person events (i.e., conferences and meetings), free webinars, and professional-development articles.

Establishing a Zero-tolerance Food-Safety Policy

If your school does not have one, you should establish a "zero tolerance" food-safety policy. Be proactive to prevent illness: Hold everyone accountable to detect potential hazards—teachers, students, administrators, school staff, and parents. The old saying—an ounce of prevention is worth a pound of cure—is still sound advice.

In many countries, public-health agencies monitor and regulate the handling and preparation of foods at schools. Most school cafeterias must adhere to state and county regulations. For example, in the U.S., school cafeterias are inspected at least twice a year by the county health department. This requirement contributes significantly to ensuring food safety at American schools. Some experts recommend that school cafeterias be inspected more often—three to four times a year.[20] Following their visits, food inspectors generate reports that become part of the public record, which schools should post prominently on their cafeteria walls. If you have not received a report on the latest inspection, request one, and make it available to students,

staff, parents, and the public.

Administrators should not assume that food handlers and parents know how to safeguard the foods that are prepared at home and brought to school. Policies relating to these matters should be printed and distributed to teachers, staff, and parents, and compliance monitored regularly. This policy should cover: (1) food brought into the school; (2) mandatory continuing education for food handlers and kitchen staff; and (3) at least one trained person charged with monitoring and maintaining food safety.

School Policy Should Include Explicit Instruction to Parents

Schools can use a variety of methods to inform parents/guardians and constituents of school policy and guidelines. The following guidelines should be relayed to parents several times each year (via mailings, flier announcements sent home with the students, a regular item in the school handbook, etc.): at the beginning of the school year, before the second semester, and again near the end of the school year—one notice is usually not sufficient.

1. Temperature requirements: Ask parents/guardians to carefully monitor the temperature of the foods they pack in children's lunch bags and boxes. Hot foods should be kept hot and cold foods cold to prevent the growth of bacteria.

Many kinds of fruits (fresh, dried) and vegetables are safe to consume at room temperature and make great lunch items, as long as they have been properly washed (even the ones that have to be peeled).

2. Ideal lunch-box foods: Certain foods are ideal for lunch boxes because they remain safe to eat for an extended period at room temperature. A peanut-butter-and-jelly sandwich makes an ideal lunch food. If peanuts are discouraged or forbidden at your school because of allergies, a good alternative is almond butter, which although somewhat more expensive, is very nutritious. Another wholesome filling for sandwiches is cheese (or soy cheese) because it can remain at room temperature without spoiling. Some canned foods (e.g., tuna, chili, pasta, vegetarian chicken) are manufactured in easy-to-open cans.

Some sandwiches (e.g., egg salad, tuna, hommus, and some lunch meat), if made the night before, can be frozen and should thaw by lunchtime. Trimmings such as lettuce and tomatoes, if packed separately in a plastic bag, will be kept cool by the frozen sandwich.

3. Supplying antibacterial wipes: Even relatively safe foods can become contaminated if handled and stored improperly.

Not only should parents wash their hands before and during the preparation of school lunches, but children also should wash their hands or use hand wipes or sanitizer before eating. The school can recommend that parents include an antibacterial wipe or small container of hand sanitizer in student lunch boxes, or provide these items for students and staff.

Conclusion

Sustaining a healthful food environment must be a high priority at school. Students who are absent due to illness will miss precious classroom time—which puts them at risk for poor academic performance. When teachers and staff are absent due to illness, this also compromises the academic integrity of the school program. Everyone at school should be able to feel confident that whatever they eat or drink there will not make them sick. Regular food inspections, having everyone practice proper hand washing, ensuring that food handlers cook and store foods at the right temperature, avoiding cross-contamination of eggs/meats and other foods, and maintaining a sanitary environment are a few general rules for assuring the health and safety of the school community.

Resources

- Action Plan or Guidelines for Creating and Maintaining a Food-safe School (The Food-safe School Action Guide): http://www.foodsafeschools.org/PDFsPPT/Summary%20Book%20final%205-5-05.pdf.
- National Coalition for Food Safe Schools (NCFSS): Resources for Schools: The Action Kit—online modules, videos, PowerPoints, administration briefing. http://www.foodsafeschools.org/.
- *Eating Safely at School:* What education policy makers need to know to do to prevent and respond to food-related illness at school: http://www.nsba.org/Board-Leadership/SchoolHealth/SelectedNSBAPublications/FoodSafety/EatingSafelyatSchool.pdf.

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R. Patti Herring, Ph.D., R.N., *is a Professor of Health Promotion and Education in the Center for Nutrition and Healthy Lifestyles and Disease Prevention, and Co-investigator of the Adventist Health Study-2 at Loma Linda University, Loma Linda, California.*

Pamela Mukaire, Dr. P.H., *currently serves as Executive Director for Resources for Improving Birth Outcomes (RIBO) and is a faculty member for the M.P.H. program at Liberty University in Lynchburg, Virginia. Her professional experiences and interests range from HIV prevention and treatment, reproductive health, and maternal and child*

health to chronic disease prevention both in U.S. and global settings. Dr. Mukaire completed her Master's in Public Health at the University of Wisconsin and her Dr.P.H. in Health Education from the School of Public Health at Loma Linda University.

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