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An Analysis of Accelerated Christian Education and
College Preparedness Based on ACT Scores

Thesis submitted to
the Graduate College of
Marshall University

In partial fulfillment of
the requirements for the degree of
Educational Specialist
in School Psychology

by

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Running head: ACE AND COLLEGE PREPAREDNESS

An Analysis of Accelerated Christian Education
And College Preparedness Based on ACT Scores

Lisa J.L. Kelley

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Abstract

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The current paper discusses Christian education in relation to college preparedness. The author focuses on Christian education and the use of Accelerated Christian Education, a prepackaged curriculum, specifically used in private fundamentalist Christian schools. Relevant research is reviewed regarding college preparedness and Christian education. The researcher obtained the ACT scores received by graduates of an ACE school over the past five years. These scores were analyzed using a t-test of comparative means ($p < .05$) to determine if there were a significant differences in ACT scores between students at the Accelerated Christian School and the students of a public high school in the same area with a graduate college application rate of 75-83%. Scores were analyzed and a significant difference was found between the public school graduates' scores and the ACE graduates' scores in all areas of the ACT (English, Math, Reading, and Composite Score), except the area of Science Reasoning. Overall, the ACT scores of the ACE graduates were consistently lower than those of the public school students.

Introduction

In recent years there has been a dramatic increase in the number of children attending private religious schools (Gewertz, 2001). Gewertz (2001) reported that by 1999, an overwhelming number of students attended various types of private religious schools including, 2.5 million attending Catholic schools, 210,000 attending Jewish day schools, and 773,000 attending some type of Christian school. Among the many children who are enrolled in private Christian schools, many thousands attend fundamentalist Christian schools that utilize the Accelerated Christian Education (ACE) system. The current review will discuss the establishment and characteristics of this curriculum as well as the literature relevant to ACE and the degree to which it prepares its graduates for college.

Also in recent years a great deal of research has been done to determine the necessary characteristics of college success. Researchers have found that in order for high school graduates to be prepared for college, their high school curriculum must foster certain skills and abilities. The research on college preparedness is analyzed and the characteristics necessary for college success are discussed in detail.

Statement of the Problem

The purpose of this study was to determine if there is a significant difference in ACT scores between students in a West Virginian Christian School and the students at a local public high school.

Review of Related Literature

College Preparedness

Characteristics of College Preparedness

The extent to which entering freshmen are prepared to deal with the “challenges, demands, and opportunities of the college experience” is an issue that has been explored by many researchers in recent years (Jenkins & Lanning, 2002, p. VI). According to Hettich (1998), many students enter colleges ill-prepared by their previous educational experiences and lacking vital skills and strategies necessary for college success. Though researchers do not agree on one set definition of college preparedness, the one which will be used in this study is adapted from a concept presented by Hettich in his 1998 book Learning Skills for College. College preparedness will be defined as the following: the acquisition of the necessary “information, skills, and attitudes essential for learning” (Hettich, 1998, p. xi) and succeeding in college. The necessary “information, skills, and attitudes” will be further defined throughout the literature review as the author presents twelve essential characteristics researchers have found vital to college success.

The first necessary characteristic for college success is being able to set goals and manage time (Hettich, 1998; Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). Hettich (1998) defines goals as “the results or milestones that a motivated person strives to reach” and goal setting as “the process of identifying specific milestones and the means of reaching them” (p. 34). In order for a student to set goals and determine ways of accomplishing them, the student must be able to prioritize and manage time efficiently. Many beginning college students face this dilemma. As Jenkins and Lanning (2002) report, 70% of college sophomores surveyed named time management as their biggest obstacle to being a successful student. In order to overcome this obstacle, students must be able to establish both long and short term goals, evaluate these goals in terms of their values, and explore various types of goals for

their lives (Carter, Bishop, & Kravits, 2002). Students entering college must be able to set goals and manage their time, as the ability to do so may be the difference between success and failure (Sherfield, Montgomery, & Moody, 2002).

College students must also be able to listen effectively, or “listen to learn” (Hettich, 1998, p. 166). Once again, researchers find this characteristic to be vital to college success, since active listening can have a significant impact on a student receiving a passing or failing grade (Sherfield, Montgomery, & Moody, 2002). An engaged listener will be able to “understand lecture material, take accurate notes, participate in class discussions, and communicate” with his or her peers (Sherfield, Montgomery, & Moody, 2002, p. 149). Students must be able to ask relevant questions and concentrate wholly on the lecture material (Carter, Bishop, Kravits, 2002; Hettich, 1998). Sherfield, Montgomery, and Moody (2002) state that to be a truly effective listener, college students must be able to listen purposefully, objectively, and constructively. That is, students must listen with a purpose, with an open mind, and try to apply what they have learned to their own lives. By possessing the ability to listen to instructors, students are more likely to succeed.

Another characteristic students need to possess prior to entering college, is the ability to take notes in class (Hettich, 1998; Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). Hettich (1998) states that “notes compensate for deficiencies” in memory and force students to focus all of their attention on the lecture (p. 184). The ability to take notes effectively is dependent upon a student’s ability to think critically and to filter out unnecessary information (Carter, Bishop, & Kravits, 2002). According to Sherfield, Montgomery, & Moody (2002),

taking notes is part of the active listening process and having good notes simplifies the studying process, as notes provide a record of course content. A college student's ability to take "useful accurate notes" greatly improves his or her chances at academic success (Sherfield, Montgomery, & Moody, 2002, p. 171).

College students must also be able to read effectively (Hettich, 1998; Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002). Carter, Bishop, & Kravits (2002), emphasize the necessity of students to be able to truly comprehend reading materials in the following statement: "True comprehension goes beyond just knowing facts and figures – a student can parrot back a pile of economics statistics on a test, for example, without understanding what they mean" (p. 120). According to these authors, true comprehension comes with the ability to personalize the information, which makes the written information truly meaningful to the student. Hettich (1998) discusses the need of students to be interactive with their texts. Hettich (1998) also states that in order to be able to read effectively, students must possess a significant prior knowledge base. This prior knowledge base will increase the speed with which students are able to comprehend reading materials (Hettich, 1998).

College students must also possess adequate study skills in order to succeed in college (Hettich, 1998; Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). Sherfield, Montgomery, and Moody (2002) state that studying must become a way of life for students and that it encompasses organization, note taking, reading the text, listening effectively in class, and developing personal study and memory techniques. Hettich (1998) also stresses the importance of being able to study and states that students must be able to organize their physical and

psychological environments in order to study effectively. Carter, Bishop, and Kravits (2002) also emphasize the necessity of students not only being able to memorize information, but also being able to understand everything that they memorize. The research is clear, in order for students to do well in college, they must be able to study.

Students must also be able to think critically to perform well in college (Hettich, 1998; Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). Critical thinking is defined as “thinking that is purposeful, reasoned, and goal directed- the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions” (Sherfield, Montgomery, & Moody, 2002, p. 94). Critical thinking involves the application of information, not just the simple recollection of facts (Carter, Bishop, & Kravits, 2002; Hettich, 1998). When students are able to think critically, they are able to do more than simply reproduce knowledge of others, but rather to generate their own thoughts and opinions (Carter, Bishop, & Kravits, 2002). Students who are able to think critically are able to focus, organize, remember, and analyze information in ways that are useful to them and their academic studies (Sherfield, Montgomery, & Moody, 2002). According to Jenkins & Lanning (2002), students must be able to think critically in order to succeed in college.

Another essential characteristic of a college prepared student is the possession of test taking skills (Hettich, 1998; Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). Tests are used by college professors in countless courses as a means of motivating students to learn, as a method of obtaining feedback, and as a way to determine if a student has mastered the material (Sherfield,

Montgomery, & Moody, 2002). Considering the great number of tests students will face in college, as well as the many different types of tests, it is necessary for students to be familiar with many different test formats and to know strategies for the different types of test questions, such as essay, multiple choice, matching, etc. (Sherfield, Montgomery, & Moody, 2002). Carter, Bishop, and Kravits (2002) add that students should be able to utilize study skills when dealing with test taking and should be able to know, by questioning the teacher or by listening actively in class, the major topics covered on a test.

Research indicates that students must also possess oral communication skills in order to succeed in college (Hettich, 1998; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). In college, students will have to present themselves and their ideas to others, either individually or in a group setting, and therefore, it is absolutely necessary that they are able to do so effectively (Hettich, 1998). Speaking publicly has become a standard in higher education today; students need to be able to communicate with confidence and credibility in order to be successful (Sherfield, Montgomery, & Moody, 2002).

Not only must students be able communicate effectively, they must also be able to work well with others in the college setting (Hettich, 1998; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002). Jenkins and Lanning (2002) report that many first year students have difficulties dealing with the new people they encounter. Whether it is their professors or their peers it is important that students possess the appropriate interpersonal skills to deal with others before entering college. Working in groups is an “inescapable reality of college experience” and students must be able to work with others

in order to succeed (Hettich, 1998, p. 323). Interpersonal skills are needed so that students can function properly in the classroom as they communicate with their teacher and peers (Hettich, 1998). Students must be able to work with others, not only in the classroom setting, but also in their daily lives, as they are likely to encounter many diverse individuals in higher education. Being able to build relationships with others is vital to college success (Sherfield, Montgomery, & Moody, 2002).

Prepared college students must also be able to write effectively (Carter, Bishop, & Kravits, 2002; Jenkins & Lanning, 2002; Sherfield, Montgomery, & Moody, 2002).

Writing is a major requirement not only in college, but also in the workforce, and it is vital that students practice writing explicitly before college, as the more they write the more proficient they will be in this area (Jenkins & Lanning, 2002). Sherfield, Montgomery, & Moody (2002) reason that college students are asked to express ideas in writing in so many different types of classes that it is vital they are able to write well regardless of the setting. A student's ability to write effectively may determine if the student succeeds or fails in higher education. College students will be required to write essays and take essay tests, and professors judge a student's thinking ability upon what they write, specifically the content and style (Carter, Bishop, & Kravits, 2002).

Scholars also indicate that a prepared college student must be able to do research, both in the library and on the internet (Carter, Bishop, & Kravits, 2002; Lester & Lester, 2002). According to Lester & Lester (2002), requiring a student to do research teaches him or her investigative skills, logic, critical thinking, and the basic elements of an evidence based argument. Doing research in the library or on the internet has become a standard in higher education in recent years. In order to be competent and successful, a

student must possess the knowledge and skills necessary to research various topics (Carter, Bishop, & Kravits, 2002).

The final characteristic needed for success in college is the ability to think quantitatively (Carter, Bishop, & Kravits, 2002). According to Carter, Bishop, and Kravits (2002), the ability to work with numbers is crucial to function successfully in today's society of technology and problem solving. Math in itself is a discipline of problem-solving, and math develops critical thinking skills in those who study it. Although the level of mathematic competency needed by each student will vary depending upon their area of study, every student will likely be required to take some type of math course, whether it be basic algebra, calculus, or a science course which utilizes math. In order to succeed in these types of courses, students must be able to think quantitatively.

It should be noted at this point that cultural preparedness has emerged recently in the research as another necessary characteristic of college preparedness (Braxton, 2000). Though this will not be a characteristic that is examined closely in the current paper, this characteristic deals with a college student's ability to acclimate to the college environment, including diverse individuals and settings (Braxton, 2000).

The ACT and College Preparedness

A direct measurement of college preparedness in students is the ACT. The American College Testing Program, Inc. produces the American College Test (ACT) assessment which is a curriculum based assessment that measures "high school students' general educational development and their ability to complete college level-work" (ACT, 2003, ¶ 1). The ACT is comprised of 215 questions that cover four basic subject areas,

English, Math, Reading, and Science (Facts about ACT, 2003). An ACT composite score is derived from these subject areas on a 36-point scale, 36 being the highest score possible (Facts about ACT, 2003). The ACT is typically taken by 11th and 12th grade high school students and, in the year 2002, over 1.1 million students were assessed by the ACT (Facts about ACT, 2003). The ACT is required by more colleges and universities than any other college entrance exam (Facts about ACT, 2003). The ACT, which takes approximately two hours and 55 minutes to administer, is required by more four year colleges than any other college entrance exam (ACT, 2003). ACT scores are utilized by colleges and universities in various manners. ACT scores may be considered in admission processes, course placement, academic advising, and in the allocation of scholarships and loans (How High Schools and Colleges Use ACT Results, 2003).

According to ACT, Inc., “more than 40 years of research has shown that performance on the ACT Assessment is directly related to first year college grade point average” (Standards for Transitions for ACT Assessment, 2003, ¶ 6). In a 2002 study, Noble and Sawyer found that “ACT composite scores provide greater differentiation across levels of achievement than do high school GPA’s in terms of students’ probable success during their first year in college,” thus demonstrating the importance of ACT scores in determining college success (p. 19). Stumpf and Stanley (2002) found that ACT scores can also be used as valid predictors, not only for college success, but also for college completion and graduation. Furthermore, it has been found that ACT scores are directly affected by courses taken in high school, high school grade point average, and the high school attended by the student, thus demonstrating the responsibility placed

upon the high school curriculum in the success of the student on the ACT and in college (Noble, Davenport, Schiel, & Pommerich, 1999).

Christian Education

A Brief History

As most scholars know, modern day public schools have their roots in Christianity. The first “public” schools were in Massachusetts in the 1640’s and were established with the purpose of teaching the Bible (Stoker & Spawn, 1980). In fact, public education was church-related throughout the seventeenth, eighteenth, and most of the nineteenth centuries (Stoker & Spawn, 1980). It was during the nineteenth century that public schools began to come under the governance of states as states began to financially support them and preside over them (O’Reilly & Fellman, 1982).

When states began to oversee the educational system, some religious groups began to segregate themselves from public schools (Fleming & Hunt, 1987). Facing much religious discrimination throughout this time period, those of the Catholic faith led the movement away from public schools (Stoker & Spawn, 1980). Concerning this shift in education, Fleming and Hunt (1987) write,

The efforts of these churches whose religious motives were often augmented by ethnic factors resulted in the establishment of a number of church-affiliated schools that operated more or less outside the sphere of public control. They prepared and selected their own teachers, set up their own curricula and goals, chose their own textbooks, and attempted to inculcate in their young values of their denomination. (p. 518)

During the 1960's Americans began reporting a lack of confidence in the United States' government, religious institutions, and public education (Rose, 1988). It was during this time that evangelical and fundamentalist Christians began to voice their rising discontent with public schools (Elkins, 1992). With the removal of prayer from public school, and as the rights of African Americans, women, and homosexuals began to increase, fundamentalist Christians desperately sought an alternative to public education (Rose, 1988). By the 1980's the concept of school choice was established (Davis, 1990). It was during this decade that the number of fundamentalist Christian schools began to drastically rise as "dissatisfaction with public schools over such matters as lack of discipline, the abandonment of God-centered education, and the espousal of a humanistic rationale" increased (Fleming & Hunt, 1987, p. 518). In fact, Fleming and Hunt (1987) report that, from 1965 to 1983, fundamental Christian schools increased in number by 223%. Many of these schools were founded with a pre-packaged curriculum called Accelerated Christian Education (ACE), which then and now required little start up money and no certified teachers (Mayes, 1992). In 1980, this curriculum claimed to serve 20% of all Christian schools or approximately 3,000 institutions (Hunter, 1982).

According to Gewertz (2001), Christian schools today, including Catholic schools, still make up a significant portion of the education world, approximately ten to eleven percent. Of that portion, however, the exact percentage of fundamentalist Christian school using ACE is unknown. In a 1999 catalog produced by ACE, the company reported that the curriculum was being used by a network of "some 7,000 schools in 125 countries, 14 government contracts, and thousands of home educators" (ACE, 1999, p. 3). The exact number of ACE students today is unknown. In response to

the question of how many children are educated by ACE currently, an Accelerated Christian Education representative (S. Mossman, personal communication, December 2, 2003) stated the following:

...it is hard to give you exact number. However, if the average school size is 45 students and there are 5,000 schools. That would give you the number of students enrolled in schools. We have about 4,000 students enrolled in Lighthouse Christian Academy, our home school academy, and we probably have about 15,000 retail accounts of home-educated students. That does not take into account the students that are served by other distributors of the ACE curriculum.

Using this type of estimation, it is difficult to accurately determine how many students are served by ACE.

Fundamental Christians and Reasons for Separation

Though Christianity is a mainstream faith in society today, those practicing fundamentalism are a religious minority within the larger group and face significant religious discrimination. In a recent study, Bolce and Maio (1999) found a “...persistence of significant apathy...” and “...intensely antagonistic sentiments toward fundamentalists” (p. 54). For this reason, fundamentalist Christians may be considered a religious minority, as they are predominantly viewed negatively by society and are typically not associated with mainstream Christianity.

Despite denominational titles, fundamentalist Christians are united by their “belief in the full authority of the Scriptures [a literal interpretation of the Bible as the infallible word of God], a personal relationship with Christ as savior, and the urgency of converting others to Christ” (Rose, 1988, p. 24). Stoker and Spawn (1980) further comment that

fundamentalist Christians believe in being “born again”, a literal interpretation of the King James’ version of the Bible and they typically attend church services several times a week. Fundamentalist Christians began emerging in large numbers shortly after World War I as a resistance movement fighting those who departed from orthodox belief, that is, those who accepted criticism of the Bible and Darwin’s theory of evolution (Rose, 1988). Since that time, fundamentalists Christians have taken a separatist position and often view the world as full of sin and corruption (Rose, 1988). Perhaps this view of separation can be best understood by quoting the words of Pastor William Muller, a fundamentalist pastor who was interviewed by Alan Peshkin in his 1986 book, God’s Choice. According to Pastor Muller:

The Bible says we are in the world, but not to be of the world. All that is of the world – the lust of the flesh, the lust of the eyes, the pride of life – is not of the Father... Therefore, we must do what we can to influence the world, and yet to know the breaking point at which we say, ‘I want to reach the world, but don’t want to be identified as necessarily part of the world.’...Let’s have no fellowship with those who live in darkness. We’re not to be in partnership with the untruthful works of darkness. (Peshkin, 1986, p. 9)

This ideal, held by most fundamentalist Christians, is most likely what catalyzed the large movement in the 1980’s to alternative Christian schools. Rose (1988) states that, during this time period, fundamentalists Christians found themselves in a struggle to recapture influence in a society they had once directed and defined, a society where the rights of African Americans, homosexuals, and those in poverty “threatened to undo such ‘fundamental’ arrangements as sex roles and racial and class relations” (p. 25). Pantana

(1985) also suggests that Christian parents are unhappy with the perceived lack of discipline in the public school, the banning of God and prayer from public schools, and the rising concern about the teaching of humanism and moral relativism. Pantana (1985) also proposes that perhaps it was growing racial pressures that led to the creation of these separatist schools. Peshkin (1986) further comments on this by stating that fundamentalist Christian schools have “one doctrine, one truth, one way” and such institutions “reject the diversity that is not only allowed but also celebrated in the public school” (p. 14).

There is no better way to truly understand the motives of the parents during the decade of school choice than to present comments recorded by Lowrie (1982) in his book To Christian School Parents. At the time the book was written, Lowrie was a fundamentalist Christian parent of children who attended a private Christian school. Throughout the book he gives his reasons for placing his children in a Christian school. He states “...all truth is God’s truth, including history and geography, science, music, and the arts, and...Jesus Christ is central in all learning and living” (p. 31). Lowrie also states that public schools answer many vital questions incorrectly, such as the question of the origin of the universe and that it is the parents’ responsibility to ensure that their children are raised with the truth of the Lord. Lowrie quoted one parent as saying “No longer can we entrust our son’s future to unregenerate educators who teach opposition to God’s Word and confusion to our child’s mind” (p. 37). Peshkin (1986) quotes Pastor William Muller as saying, “Today, Christian schools are a necessity. Without them we can’t rightfully accent our biblical commitment” (p. 7).

Though not all fundamentalist Christians see a need to separate their children from public education, it is clear that many fundamentalist Christians still maintain and manage private schools. However, have the reasons for establishing these schools and sending children to them changed? A recent article by Koerner (2000) quoted a fundamentalist minister as saying the reason he feels private Christian schools are necessary is because public schools are “pagan” “anti-Christian” and “unbiblical” (p. 54). These comments seem to coincide with statements made to the researcher of this paper in several interviews with Christian school parents and operators which lead to the conclusion that the reasons for private Christian schools have remained largely unchanged. Though, race does not appear to the researcher as being an issue in the minds of most fundamentalist Christians today (proven by the fact that many Christian schools observed by the researcher have an open enrollment policy and accept almost any student regardless of race) the idea that these schools protect children from an evil world is still very relevant. Many fundamentalist Christians today still believe that it is the parents’ responsibility to educate their children in a Godly manner, citing Deuteronomy 6:7, which states:

And thou shalt teach them diligently unto thy children, and shalt talk of them when thou sittest in thine house, and when thou walkest by the way, and when thou liest down, and when thou risest up.

To the fundamentalist Christian who believes in Christian education, this scripture proves the need for a separate education that is Christian based, and also emphasizes that it is the parents’ responsibility to ensure that their child receives this Biblically mandated education. Many compare Christian education to a greenhouse which protects a fragile

plant as it grows in a cruel world. For most fundamentalist Christians who send their children to private church schools today, there simply is no other acceptable alternative.

Accelerated Christian Education

Accelerated Christian Education, also known as the School of Tomorrow, was developed in 1970 by a Baptist minister named Donald Howard and his wife, Esther (Hunter, 1982). The first school to utilize this material was founded and staffed by the Howards in Garland, Texas the same year the first edition of ACE material was published, in 1973 (Hunter, 1982). The educational system consists of PACEs (Packets of Accelerated Christian Education) that each student works through independently at his or her own rate (Alberta Department of Education, 1985). A PACE is a small paper booklet that the student can read and work through independently, filling in the spaces and blanks provided for written responses. Accelerated Christian Education describes their learning materials as “self instructional, individually prescribed, continuous progress material” (ACE, 1999, p. 3). Accelerated Christian Education offers these self-instructional materials for kindergarten through twelfth grade and each level is divided into twelve PACEs in each subject area (Fleming & Hunt, 1987). Basic subjects, such as English, science, social studies, and mathematics, as well as several electives like business, the Bible, art, and language are offered (Fleming & Hunt, 1987). The curricula present not only the information on the basic subjects, but each PACE also emphasizes one of “sixty ideal biblical character traits” such as “appreciative, attentive, compassionate, efficient, faithful, fearless, meek, patient, submissive, thrifty” and “virtuous” (ACE, 1999, p. 18-19). Through these PACEs, ACE claims that children are able to not only attain knowledge and understanding, but also wisdom, which according

to ACE is “the highest of the three dimensions of life and helps students to walk with God, to live as He did when He was in human form...Wisdom is observable biblical principles and character in action” (ACE, 1999, p. 8).

In the first years of its inception, Howard wrote several books detailing his philosophy of education and reasons for establishing ACE. Unfortunately, according to an ACE representative (personal communication, December 8, 2003), these books are no longer in print; however, the same representative assured the researcher that it is “the same old ACE” and that today, Mrs. Esther Howard is the presiding president of ACE with the same ideals. Therefore, Howard’s comments, which are throughout much of the literature of the early 1980’s, may be viewed as relevant to the ACE organization today and will be used in the current paper to illustrate the foundation upon which ACE was established.

Howard, as previously stated, was a fundamentalist Baptist minister who sought to develop a truly Christian educational system (Hunter, 1982). Davis (1990) lists several factors that Howard stated were critical to his decision in establishing a private school. These factors included: “the progressive school movement, secular humanism, Supreme Court decisions removing prayer and Bible reading from public schools, the ‘God is dead’ movement, and the women’s movement” (Davis, 1990, p. 96). In a 1987 video produced by Howard, he discussed his belief that American society is corrupt because of a lack of Protestant morals in public education and stated that the cause of this deficiency of values was John Dewey who Howard claims “introduced humanism into the schools” (Davis, 1990, p. 97).

Humanism is a term often mentioned and a concept reviled by Howard and other fundamentalist Christians. Fundamentalist Christians believe that Humanism consists of five basic concepts: “atheism, immorality, evolution, the belief that man can do anything he wants do, and ecumenism [a belief in worldwide unity among all Christian religions]” (Peshkin, 1987, p. 77). Howard founded ACE on the dogma of separation from the humanistic world and Biblical orthodoxy (Hunter, 1982). Davis (1990) quotes Howard as stating in 1987 that “the National Education Association promotes a ‘liberal leftist philosophy against the radical right,’ that gay teachers are a ‘perversion of lifestyles taught in the schools,’ and that sex education is one of the ‘fruits of humanism’” (p. 98). Howard also emphasized modest dress in both men and women and the need to avoid negative attitudes and “un-Christian conversation about other Christians” (Hunter, p. 161).

In ACE catalogs today, the company continues to pride itself as “an educational strategy based on tradition, unapologetically Biblical” (ACE, 1999, p. 3). In their statement of faith, available on their website, ACE demonstrates an unchanged belief in Biblical foundations. The statement of faith lists the following five ideals:

1. The plenary, verbal inspiration of the Bible, equally and in all parts without error;
2. The one God, eternally existent Father, Son, and Holy Spirit, Who created man by a direct, immediate action;
3. The preexistence, incarnation, virgin birth, sinless life, miracles, substitutionary death, bodily resurrection, ascension to Heaven, and second coming of the Lord Jesus Christ;

4. The fall of man, the need for regeneration by the operation of the Holy Spirit through personal faith in Jesus Christ as Savior on the basis of grace alone, and the resurrection of all to life or damnation;
 5. The spiritual relationship of all believers in the Lord Jesus Christ living in a life of righteous works, separated from the world, witnessing of His saving grace through the ministry of the Holy Spirit.
- (ACE, n.d.)

Accelerated Christian education has firmly set procedures for students to follow. For example, most schools which utilize ACE require that students set their own goals for each day and week and that those goals be approved by a staff member (Stoker & Splawn, 1980). Most ACE schools also require that students work independently throughout the day at a study carrel and raise small American flags to signify when they need assistance (Stoker & Splawn, 1980). When students have completed a PACE and are ready to self score or are prepared to take the test they raise the same flag to obtain permission from their supervisor to score or test (Fleming & Hunt, 1987). ACE requires that students obtain at least an eighty percent before they are permitted to move on to the next test. If eighty percent correct rate is not obtained, the student retests until he or she attains the desired score (Stoker & Splawn, 1980).

ACE stresses patriotism and traditional values. Most schools require students to wear modest uniforms that are red, white, and blue (Fleming & Hunt, 1987). Furthermore, ACE has an established code of conduct for the students which includes corporal punishment when necessary (Hunter, 1982). In a 1982 article, Hunter quotes Howard as stating that if a student “does wrong deliberately and you produce a pain in his

body and the pain is related to disobedience then he develops a respect for obedience” (p. 160).

Accelerated Christian Education is purported to be a “teacher-proof” complete school curriculum (Mayes, 1992). ACE recommends that each school have an administrator, generally the church pastor, a supervisor (teacher), and a monitor (teacher’s assistant) for every 35 students (Stoker & Splawn, 1980). ACE also recommends, but does not require, that the administrator and teachers hold at least a Bachelor’s degree (Hunter, 1982). In a 1980 study, Stoker and Splawn observed that most ACE schools do not follow these recommendations and do not emphasize formal training for their staff. Most schools in their study appeared to stress “character, love of children, and being born-again Christians” over degrees (p. 18). In a study of Indiana fundamentalist Christian schools which used ACE, Elkins (1992) found of 30 teachers surveyed, almost one third had no special training to prepare them for their role as an ACE teacher, less than half had received training through ACE, approximately one fourth had some exposure to college, and two had obtained secular degrees. A 1979 ACE publication cited by Hunter (1982) stated the following:

Although ACE recommends all teachers hold at least a B.S. degree, the most important degree is a B.A. (Born Again) in Salvation. For any school to be Christian, all members of staff must be born again. This includes modest in dress and appearance, meek of spirit and personality, active in church and community life, clean in conversation and personal life, and a student of the Scriptures. The teacher’s life is the life of his teaching. (p. 166)

ACE is able to justify this emphasis on Christianity over formal education by their fundamentalist Biblical views and by the fact that students are provided materials which are deemed “self instructional” (ACE, 1999, p.3). O’Reilly and Fellman (1982) state that “the teaching function is not really to teach, but to supervise, monitor, or help students work their way through the packets according to the PACE directions” (p. 6). ACE does offer some training, which typically consists of several days of workshops for administrators presented by ACE national staff and, currently, ACE sells “Staff Training Kits” to schools which consist of PACEs on ACE procedures and manuals, how to deal effectively with parents, and proper ministry functions (ACE, n.d.). However, most teachers do not receive this training.

The ACE curriculum allows for uncertified and under trained teachers in direct contradiction to thirty years of studies which have concluded that “even with the shortcomings of current teacher education and licensing, fully prepared and certified teachers are better rated and more successful with students than teachers without this preparation” (Darling-Hammond, 1997, p. 308). ACE justifies the hiring of uncertified teachers by stating that ACE curriculum is self-instructional, and therefore, students do not need certified teachers as they are taught by the PACEs. However, it is logical to assume that students will have questions about the PACEs and will need an informed adult with some type of knowledge base to adequately address these questions and aid in the child’s learning. Research suggests that “sufficient training in both subject matter and pedagogy is clearly a necessity” for anyone who is in the position of teaching children (Laczko-Kerr & Berliner, 2003, p. 36). ACE school administrators may feel the practice of hiring teachers based on their religious beliefs and not on their formal training is

justified. However, the research is clear, hiring uncertified teachers results in “the hiring of unqualified teachers” and this practice is “harmful” to students (Laczko-Kerr & Berliner, 2003, p. 38).

Accelerated Christian Education is not accredited by the Association of Christian Schools International, nor is it accredited by any government organization, nor are ACE schools accredited by the states in which they are located (Mayes, 1992). Mayes (1992) reports that often the only standards private schools must meet in the majority of states are those of the local fire marshal and public health department. In most cases ACE school administrators do not desire state accreditation for “to do so would be to refute their reason for existence” (Stoker & Splawn, 1980, p. 7). In fact, some school administrators feel so strongly about this that they would rather be imprisoned than allow the state to exercise any control over their school (Elkins, 1992). For example, in 1979 Reverend Sileven of Faith Baptist Church in Nebraska was jailed after illegally operating an ACE school (O’Reilly & Fellman, 1982). Reverend Sileven refused to submit the school to any type of state inspection, which was required under Nebraska law, citing that the school “operates under God’s laws and thus is not subject to the laws of man or the state of Nebraska” (O’Reilly & Fellman, 1982, p. 6). He also refused to close the school after the state of Nebraska ordered him to do so. As a result of his illegal actions, Reverend Sileven spent thirteen days in jail until the school was finally voluntarily closed, only to reopen later that year (O’Reilly & Fellman, 1982). Reverend Sileven’s actions were not out of line with ACE philosophy. In fact, ACE itself considers state accreditation a mockery of the First Amendment to the United States’ Constitution (Stoker & Splawn, 1980).

Research Studies

Despite the large number of children that ACE serves, to date there are few published research studies which analyze this educational system. Most of the research that has been done on ACE was done in the early 1980's when fundamentalist Christian schools began growing at rapid rates. The most recent research is still not considered to be "recent" according to professional standards, and therefore illustrates the need for further study to be done on ACE. The current researcher could find few relevant studies on the topic at hand and none that had been done in the past three years. Regardless of the dates of the studies, however, ACE has changed very little since its inception and is still using the third edition of PACEs, which was initially printed in 1980. Therefore, the findings of most of the outdated research can still be applied to ACE today.

In 1980 Stoker and Splawn did a survey of ACE schools in Amarillo, Texas for the West Texas State University. The purpose of their study was to determine if any ACE practices could be imitated in public schools. In the schools which Stoker and Splawn observed, they noted that since the students pay tuition, families in poverty would be unable to send their children to these Christian schools, thus the poorest children were omitted. They also noted that the student bodies were 95% Caucasian and that the schools did not accept special needs children. Stoker and Splawn observed several aspects of the ACE schools which they believed could be replicated in public schools. Stoker and Splawn recommended the individual learning approach for gifted students and for students who do not learn well from traditional teacher led classes. They applauded the strict discipline and the way in which ACE administrators performed corporal punishment, and they also recommended the small student to teacher ratio. Stoker and

Splawn also agreed with the practice of emphasizing the teacher's personal characteristics over his or her degrees, recommended that public schools attempt to get parents involved to the great degree which ACE schools do and stated that ACE students tend to do well without a great deal of extracurricular activities and elaborate school facilities and that in public schools these areas may receive "too much money, time, and attention" (p. 24). Because these researchers did not base their recommendations on quantitative data, but rather on personal opinion, their recommendations may not meet current educational standards. Regardless of how relevant their recommendations are, however, their observations do present a portrait of ACE schools that has not changed a great deal over the years.

In 1985 the Alberta Department of Education performed an audit of selected private school programs which were Christian based and ACE was included among the several programs they reviewed. In this review researchers analyzed the ACE curriculum to determine to what degree it aligned with the goals and objectives set by the Alberta Department of Education. Through their audit, researchers noted the following:

For the most part PACEs are well written, present information clearly and are organized around explicit objectives. The use of examples, practice exercises, systematic reviews, and cumulative exercises illustrates the incorporation of commonly accepted, sound principles of pedagogy. (p. 22)

Despite this positive observation, however, researchers also noted several areas of concern regarding the ACE system. Researchers found that ACE materials rarely met more than 50% of the goals and objectives set by the Alberta Department of Education. Also, of the five main competencies required in language arts by the Alberta Department

of Education (reading, writing, viewing, listening, and speaking), ACE materials only covered two of the five, reading and writing, and Alberta researchers deemed the writing coverage to be insufficient. Alberta researchers further noted that “there are far too few examples in the ACE curriculum of materials where students are called upon to exercise their creative powers, to be original and to develop critical thinking skills” (p. 19). Researchers also reported an obvious “American orientation” in PACEs and questioned to what degree some high school courses offered by ACE warranted high school credits according to Alberta standards (p. 19). It was also observed by researchers that PACEs seemed to encourage “rote learning” through their high number of exercises which require little more than “simple recall” (p. 21). Researchers also stated that ACE materials promoted intolerance in certain subject areas, such as science. Researchers rated ACE biology programs as unacceptable due to the “repeated condemnation of those who reject the author’s interpretation of the Bible” as it pertains to science (p. 24). The main concern noted by researchers was the lack of preparation students received for the Alberta Advanced Diploma examinations. Through their audit, researchers determined that ACE did not adequately prepare students to do well on this examination. Overall, the Alberta Department of Education found ACE materials lacking in educational soundness according to their standards.

In 1987 Fleming and Hunt, professors of education at Virginia Polytechnic Institute and State University, did a similar curriculum review of ACE materials which focused specifically on ACE social studies PACEs for grades seven through eleven. The researchers noted that ACE seemed to present history strictly from the authors’ viewpoint, using only a fundamentalist context. Fleming and Hunt reported many

instances in the materials where “the bias of the author takes over, and the facts are distorted or inaccurate” (p. 523). Fleming and Hunt gave an example of this bias in the presentation of “an almost paranoid fear of Communist conspiracy in all aspects of modern life” and the way in which the authors so negatively portray the United Nations (p. 523). The researchers also noted that sections of the tenth grade social studies PACes are identical to sections of the ninth grade social studies PACes, thus indicating some repetition. Based upon their curriculum analysis, Fleming and Hunt concluded that the ACE materials present information in such a simplistic manner that in most cases they believe students would not be able to obtain an adequate comprehension of the causes and effects of world events. Fleming and Hunt summarized their review with the following criticism:

If parents want their children to obtain a very limited and sometimes inaccurate view of the world – one that ignores thinking above the level of rote recall – then the ACE materials do the job very well. The world of the ACE materials is quite a different one from that of scholarship and critical thinking. (p.523)

In response to the Fleming and Hunt study, the vice president for development of ACE, Ronald Johnson, wrote a rebuttal that appeared in the same 1987 publication. Johnson specifically commented on the above quoted criticism and stated, “This comment reflects a biased preference for a humanistic, anti-Christian view of history and disregards ACE’s theistic view of history” (p. 521). Johnson also stated that Christians too are capable of scholarship and possessing valid opinions on politics and that ACE does not reference works because they are considered to be “scholarly or critical” but references works by conservative Christians that reflect the beliefs of ACE (p. 521).

Furthermore, Johnson stated that ACE does not write its materials with traditional educational methods in mind and they “do not believe that education should be nondirective or speculative, or the final interpretation should be left up to immature, inexperienced minds, as mainline secular curricula do” (p.521). Johnson responded to the criticism of repetition by stating that repeating material which is considered to be important is done purposefully by ACE authors. Johnson also stated that students who use ACE materials score two to three grade levels higher than students in public schools on the California Achievement Tests using 1977 norms, thus demonstrating that children who use ACE are learning and excelling. In his conclusion, Johnson stated “Fleming and Hunt suggest that ACE presents a ‘paranoid’, ‘inaccurate’ or ‘incomplete’ view of subject matter. Our writers reflect truth as the evidence substantiates” (p. 521).

One of the most recent ACE curriculum analyses was done in 1993 by Speck, a senior lecturer of the University of South Australia, and Prideaux, an Associate Professor of Education at the same institution. Their review focused briefly on social studies materials and more comprehensively on the science materials of ACE. They noted through their study that the idea of “individual progression” presented by ACE is a farce (p. 283). Speck and Prideaux stated that the reality is “each child works alone in a carrel on a series of low-level cognitive tasks, mostly consisting of association and recall activities and always in workbook form” (p. 283). The researchers further criticized ACE reports of their students exceeding others in their performance and achievement as measured by the California Achievement Test (CAT). Speck and Prideaux stated that ACE administrators use an outdated form of the CAT from 1957, with outdated norms from 1963. They further stated that the CAT does not emphasize problem solving as

other standardized tests do, and therefore is an invalid instrument to use when comparing ACE students to public school students. In reviewing the social studies materials, the researchers noted a certain level of intolerance for Australian Aborigines as the materials fail to demonstrate or celebrate the culture of this Australian native, but instead, focus on how Aboriginal religious beliefs do not align with the Bible. Speck and Prideaux further noted that the ACE social studies PACEs do not “contain an appropriate values education program for children in Australian society” as it presents gender roles and other topics strictly from a fundamentalist Christian perspective, thus failing to establish a “sensitive understanding of the values of the wider society, argued as important in Australian social studies programs” (p. 287). In their review of science PACEs, Speck and Prideaux compared ACE materials to the Australian criteria for content, process, and skills. The researchers noted that ACE begins to teach specialized scientific information at young ages and fails to establish an adequate foundation of scientific principles from which students can build their knowledge base. Speck and Prideaux predicted that this lack of a scientific foundation would make acquiring scientific information difficult for older ACE students. Much like the Alberta Department of Education noted in their 1985 review, these researchers found that ACE materials had a clear North American orientation and lacked in content regarding their own country. Speck and Prideaux also noted the clear dichotomous presentation of scientific facts to students in a manner that allowed for no areas of uncertainty. The researchers criticized the dogmatic way in which ACE presented creationism as a science and totally discounted the theory of evolution with little evidence to validate creationism. Overall, Speck and Prideaux found that PACEs do not teach the necessary skills of science and that:

absent are the interactive, problem-solving aspects of science, the Australian socially relevant content, the interactive ‘hands-on’ practical science, the adherence to the principles of science curriculum design set in recent Australian science curriculum documents, and a respect for science methodology and content. (p. 291)

The researchers concluded their study by stating the students in ACE schools are at a disadvantage educationally as they are censored from accepted theories and basic knowledge in the areas of social studies and science.

In her 1988 book, Keeping Them Out of the Hands of Satan, Rose cites what is perhaps the most extensive study of ACE students to date. In this study, conducted by CTB/McGraw-Hill in 1983, 7,500 ACE students were tested and compared to a nationally representative sample. Researchers found that the average ACE student scored 65% higher than the average control group student. This group, however, may be viewed as very self-selected, and may have only included those with the money for a private-school education, and most likely, included no children with disabilities. Also, in light of the evidence presented by Speck and Prideaux regarding how ACE measures student achievement, one may question the outcomes of the study. Despite such controversy, Rose states that ACE typically cites such studies to prove the adequacy of their curriculum. In her own study, Rose compared students of an ACE school to students of a conventional Christian school. Rose states that “ACE students should be well prepared to digest ‘how-to-manuals’ but less well prepared to write essays and ask critical questions” (p. 165). Rose asked sixth and seventh graders of both schools to write essays on a specified topic. When comparing the students’ work Rose noted that the ACE students’

essays were “significantly shorter, less detailed, less well organized, and more restricted in vocabulary” (p. 165). Furthermore, through interviews and surveys of Christian educators, Rose reported that ACE students could not easily transition to other forms of curricula because most were unable to handle the wide scope of other materials.

In a 1992 doctoral dissertation at Indiana University, Elkins did an extensive study of 13 Apostolic schools in Indiana which utilized ACE materials. The Apostolic faith is a form of Christian fundamentalism. In her study Elkins noted twelve weaknesses of ACE found in her review of the literature. The following are the reported weaknesses:

1. ACE curriculum is not individualized as it claims.
2. ACE students do not have the opportunity to develop note-taking skills, to engage in group work, research, discussion, communication, and they do very little writing.
3. Many ACE teachers are inadequately prepared, and the curriculum’s emphasis on teacher-proof materials has lessened the effect of the Christian teacher as an example.
4. The lack of social interaction in ACE classrooms is seen as a problem.
5. The pastor, who is generally not trained as an educational administrator, serves as a principal.
6. There is an excessive emphasis on factual information at the expense of problem solving and critical thinking.
7. ACE’s political orientation borders on propaganda.
8. Attempts to translate non-religious subject matter with Bible references gives material a disjointed, artificial air.

9. There is a scarcity of reading materials, overemphasis on independent work in early levels, and reading is not included in all language arts lessons.
10. ACE is a single, behavioristic method and does not make provision for various student learning styles.
11. The program does not prepare students to face the realities of life by attempting to eliminate failure from the student's experience.
12. The large amount of detailed bookkeeping in the ACE program tends to bog down both teachers and students. (p. 23)

Through countless observations, Elkins also noted her own criticisms of the ACE method of instruction. Overall, Elkins reported that ACE material is “narrow” in five aspects (p. 233). First, she stated the ACE material is narrow in its philosophy, which she observed to be, for the most part, negative. Elkins demonstrated this narrowness by the fact that ACE does not allow for controversial subject matter, nor does it allow for open discussions of modern events and issues. PACEs do not illicit thought-provoking questions from the students, but rather encourage students to simply find all answers within the materials. Secondly, Elkins observed narrowness in time frame. Elkins noted that ACE is based on a colonial Puritan educational model, and ACE does not seem to make any attempt to meet individual needs, or to incorporate modern society or events into learning. Thirdly, Elkins observed narrowness in the purpose of the curriculum. Elkins stated that the subject matters are limited and students are presented with nothing more than educational minimums that are intertwined with material that overemphasizes obedience and complacency to authority. Fourthly, Elkins noted the “materials, methods, and classroom procedures” to be narrow in their scope (p. 234). Elkins observed that

most classrooms contain only what is necessary to implement the ACE program and little else. Elkins reported the materials for instruction are, for the most part, limited to those which ACE provide, materials which act as censors to outside secular ideas. Elkins further demonstrated the narrowness of ACE materials by using the ACE reading program as an example. This program, then and now, uses only one strategy to teach children to read, phonics, and ignores all other reading strategies. Finally, Elkins noted that ACE is narrow “in terms of accountability” (p. 235). ACE places all responsibility of learning on the shoulders of the students, their failure is their fault. Because most ACE users are not professionally trained, Elkins noted it would be quite difficult for them to evaluate their own school’s program, and therefore ACE is only accountable to those who use it, the students (Elkins, 1992).

No recent studies are available on how the ACE curriculum affects college readiness and performance. In a 1985 doctoral dissertation for Miami University Monroe administered the Watson-Glaser Critical Thinking Appraisal (CTA) to a group of entering freshmen at Cedarville College and compared this score to that of their ACT or SAT score. The freshmen were divided into groups based on their educational background which were students who came from public schools, Christian traditional schools, and ACE schools. Despite the fact that the highest CTA and ACT scores came from an ACE student, overall, Monroe found that, as a group, the ACE students had the lowest ACT and CTA scores when compared to the other groups. While the ACT and CTA means of public school students were 21.17 and 54.72 respectfully, the scores of the student from the traditional Christian student were 20.93 and 55.37 respectfully. The

means of the ACE student can be seen as somewhat lower at 19.10 for the ACT and 52.66 for the CTA.

In another 1985 doctoral dissertation, Pantana did a similar comparison of students from public schools, conventional Christian schools, and ACE schools. Pantana, however, did not focus on critical thinking skills but rather on academic achievement, attitudes regarding study, and SAT/ACT scores. Pantana measured academic achievement by comparing first and second semester grade point averages of the students. The Study Attitudes and Methods Survey (SAMS) was used to measure attitudes toward studying. Overall, Pantana found no significant difference in any of the measured areas of the three groups. The lowest grade point average mean for the first semester, however, was that of the ACE student group, which was 2.49, compared to the highest received by the public school students of 2.75. ACE students also demonstrated the lowest scores in the math percentile of the SAT/ACT with a score of 37.831, compared to the highest score received by the public school group of 43.446. Again, no significant difference was noted concerning the results of the SAMS; however, the ACE group did score the highest in the area of academic interest, which reportedly measures an interest in learning.

The most recent study of college students from ACE schools was done informally by Deuink of Bob Jones University in 1991. This study was cited in Elkins' 1992 doctoral dissertation through a personal communication between Elkins and Deuink. In this study Deuink compared the grade point averages and the ACT scores of entering freshmen at Bob Jones University of students from public schools, conventional Christian schools, and ACE schools for two different time periods, 1984-1985 and 1990-

1991. For the first time period of 1984-1985, ACE students demonstrated the lowest means for both GPA and ACT scores, with a mean GPA of 2.33 and a mean ACT score of 19.1. These scores were compared to the means of the public school students which were 2.52 for GPA and 20.4 for ACT scores, and the conventional Christian school students which demonstrated the highest mean GPA of 2.63 and a mean ACT score of 19.3. In the time period of 1990-1991, the mean GPA of the ACE student rose to 2.51, while the mean ACT score remained virtually unchanged at 19.0. The public school students also increased their mean GPA to 2.60 and furthermore, this group's ACT mean score rose to 20.4. The conventional Christian school student group's mean GPA remained unchanged at 2.63, while the group's mean ACT score rose to 20.5. It should be noted that ACE students represent a very small percentage of students relative to the other groups and, in each entering class, only six ACE students were admitted, compared to 71 conventional Christian school students in 1984, 66 conventional students in 1990, 23 public school students in 1984, and 25 public school students in 1990. Due to the small number of ACE students, it is difficult to determine if their academic abilities are representative of ACE students as a whole.

The paucity of research on ACE justifies the need for further studies in this area. Despite the large number of children ACE serves worldwide, no recent research has been done on this method of education. In a modern world that values higher education, it is very necessary to evaluate curriculum to determine to what degree it prepares students for college and careers. As previously mentioned, few researchers have sought to determine the adequacy of ACE with respect to college preparedness, and no recent data is available on this subject. Because ACE prides itself as being a self instructional curriculum, that

requires no certified teachers, the PACES themselves should be adequate in preparing a student for college. Therefore, with an examination of ACT scores of recent graduates of an ACE school, the author hopes to investigate the strengths and weaknesses of the ACE program and its ability to prepare students for college.

Methods

Research Question

Was there a significant difference in ACT scores between students at a West Virginian Christian School and in students in a local public school during the school years of 1998-2003?

Sample and Procedures

A fundamentalist Christian School in West Virginia which utilizes ACE was evaluated for the purposes of the current study. This Christian School, which for the purposes of this study will be known as CS, serves approximately 150 students from grades kindergarten through twelfth. The school has been in operation since the early 1980's and has graduated approximately 130 to 150 students. Each year approximately 40-50% of CS graduates take the ACT. The current study focused on thirty-two graduates from 1998 to 2003 who took the American College Test (ACT). Also included in the sample are the students of a local public high school, which for the purposes of this study will be known as PS, located within 4 miles of CS. This high school serves approximately 1400 students and each year approximately 75-83% of its graduates go on to apply to college. The county Board of Education was contacted and average scores for each category of the ACT along with average composite scores were provided to the researcher for the school years of 1998-2003. This sample included 1240 students

overall. The mean for each test category (English, Math, Reading, and Science Reasoning) and the overall composite scores were computed from the ACT results of the CS graduates. These means were then compared to the mean scores of the graduates of PS and a t-test of comparative means was performed ($p < .05$) to determine if there was a significant difference among the scores.

Operational Definitions

ACT, the American College Test, will be defined as a college entrance exam that measures “high school students’ general educational development and their ability to complete college level-work” (ACT, 2003, ¶ 1). Proven by over forty years of research, this measurement has been found to be directly correlated to college preparedness (ACT, 2003).

Accelerated Christian Education (ACE) can be defined as the following: a prepackaged curriculum that consists of PACES (packets of Accelerated Christian Education) that students work through independently at their own rate. This curriculum is Bible based and teaches principles and ideals of fundamentalist Christians.

Measures

The principal of CS was contacted and ACT scores of recent graduates from the years 1998-2003, which were kept on record by the school, were obtained. The composite score as well as scores in the areas of English, Math, Reading, and Science were analyzed using a t-test of comparative means at the $p < .05$ level of significance to determine if there was a significant difference between the graduates of the ACE school compared to the average scores of students from the PS.

Study Limitations

The current study did not account for variables such as socioeconomic status, ethnicity, gender, or parent's level of education. These variables may impact ACT scores and therefore need to be considered in future research. Also, by comparing ACT scores to the local public school, though it is assumed that demographic information would be similar, this information was not collected and therefore, may leave room for error in interpretation. Also, this study compared the scores of only thirty-two graduates of CS to the scores of 1240 graduates of PS. This large gap in sample sizes may also skew the results. Furthermore, additional information to link ACE to college preparedness needs to be obtained such as college grade point average and a survey of ACE graduates and their perceptions of their own readiness for college.

Results

Table 1 compares the mean ACT scores in each category and the ACT composite scores of PS and CS over the five year period. It can be seen through this comparison that the ACT scores of the Christian School, (CS) are consistently lower than the ACT scores of the public school (PS) in all areas.

Year	English		Math		Reading		Science Reasoning		Composite	
	<i>PS</i>	<i>CS</i>	<i>PS</i>	<i>CS</i>	<i>PS</i>	<i>CS</i>	<i>PS</i>	<i>CS</i>	<i>PS</i>	<i>CS</i>
98/99	20.5	19.6	20.2	16.7	21.4	19	20.9	20.1	20.9	18.9
99/00	20.8	19.2	20.8	15.2	22.4	18	21.5	19	21.5	18
00/01	21.8	20.7	21.2	19.8	22.6	20.2	21.6	20.2	21.9	20.2
01/02	21.8	18.3	20.9	20.3	22.3	18.5	21.3	19.4	21.7	18.9
02/03	21.2	18.4	20.7	17.7	22.1	21.1	21.1	21.4	21.4	20

Table 1: Mean ACT Scores

The mean ACT scores were then analyzed using a t-test of comparative means ($p < .05$) to determine if the observable difference in the scores (CS being consistently lower than PS) was a statistically significant difference over the five year period. Each category was analyzed separately. Table 2 represents the results of the t-test analysis.

	Paired Differences						
<i>PS - PC</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Std. Error of Measure</i>	<i>95% Confidence Interval of the Difference</i>		<i>t</i>	<i>Sig. (2-tailed)</i>
				Lower	Upper		
English	1.9800	1.12561	.50339	.5824	3.3776	3.933	.017
Math	2.820	1.94731	.87086	.4021	5.2379	3.238	.032
Reading	2.800	1.33417	.59666	1.1434	4.4566	4.693	.009
Science Reasoning	1.2600	1.07378	.48021	-.0733	2.5933	2.624	.059
Composite	2.2800	.85849	.38393	1.2140	3.3460	5.939	.004

Table 2: Paired Samples Test Results

As can be seen from the above table, there is a statistically significant difference between the two sets of ACT scores in the following areas: English, Math, Reading, and the Composite Score. No statistically significant difference was found in the area of Science Reasoning.

Discussion

The mean ACT scores of the Christian School and the public school were analyzed using a t-test of comparative means. The mean scores for the Christian

School were consistently lower than the public school in the following areas: English, Math, Reading, and the Composite score. Scores in the area of Science Reasoning, however, were found to be consistent between the two groups. These results support the results of Monroe (1985) and Pantana (1985) who both found that overall ACE students' ACT scores were lower than students in public schools. These results also support the informal study done by Deuink in 1991 that was cited by Elkins in her 1992 doctoral dissertation. Deuink also consistently found that the ACT scores of ACE students were lower than graduates of public schools. These results may also support the criticisms of Elkins (1992) who questioned the effectiveness of the ACE reading program, and of Rose (1988) and the Alberta Department of Education (1985) who doubted the ability of the ACE system to properly teach English skills.

Interestingly, the one area that did not have a significant difference in ACT scores was Science Reasoning. Science, as taught by ACE, has also been highly criticized (Speck & Prideaux, 1993), however, scores in this area, for the most part, were not significantly lower than the public school. One possible explanation for the lack of difference between the scores may be that ACE fosters science reasoning through its extensive focus on creationism. From a young age children are taught how to dispute evolution and defend their belief in creationism. Inherent in teaching children how to oppose an alternative view may be the science reasoning skills necessary to do well on the ACT.

The results of the current study are strengthened by the fact that while 70-83% of the public school graduates took the ACT, only 40-50% of Christian school graduates participated in this assessment. The small number of Christian school graduates who

took the ACT most likely represents the academically strongest students. Despite the fact that the academically strongest students participated in the ACT assessment, the scores of the Christian school graduates were still significantly lower, indicating the possibility that the ACE curriculum does not adequately prepare students for college.

The fact that there was a significant difference in all areas over the five year period, with the exception of Science Reasoning, may indicate academic weaknesses in the ACE curriculum that may lead to lack of preparation for college, however, to make such a conclusion based on the ACT scores alone would be erroneous. As mentioned in the study limitations, a great deal more research is needed in this area to truly determine whether or not ACE adequately prepares students for college. A curriculum review should be performed to determine whether or not ACE fosters the characteristics of college preparedness mentioned in the literature review. Also, college freshmen grade point averages should be considered and a survey of ACE graduates attending college should be conducted. To strengthen the study, subject matching may be done to assure that participants from the Christian school and public school are matched according to gender, race, and socioeconomic status. Also, including more Christian schools in the sample and stratifying the data would lead to more conclusive results.

Conclusions

ACT scores of ACE graduates have been found to be consistently lower than scores of public school students. The difference between the ACT score means of the public school and the ACE school was found to be significant in all areas except Science Reasoning. These results are consistent with previous research and scholarly criticism of ACE found in the literature review. These results alone do not indicate, however, that

ACE does adequately prepare graduates for college. As previously mentioned, to make this assumption would be erroneous as much more research is required in the area to draw any applicable conclusions.

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