

Application of the “Engineering Mindset” for Worldview Evaluation

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Abstract

Engineering students are challenged to apply their knowledge and skill in the fields of science and engineering to the largely-neglected, but valuable activity of worldview evaluation. Nine different worldview tests are investigated with regard to the applicability of the “engineering mindset”. As examples, students are encouraged to ask difficult questions of their own worldviews, and see how the historic Christian worldview “stacks up” against the alternatives. In investigating how modern science and engineering design principles assist in the formulation of an accurate worldview, students are inspired to make the most of their technical education, and find motivation for a fulfilling life of mission and purpose.

Connections between Worldview and Engineering

A major aspect of engineering education deals with the appropriate application of available resources for the solution of human problems. This aspect has become increasingly more important as the finitude and possible fragility of once abundant natural resources has become clear in light of current discussions on sustainability. Engineers have the important task of applying their knowledge, skills, creativity, and wisdom to make the best use of these resources. Thus, the fundamental assets that each engineer brings to the table in the solution of any problem are the personal resources of his or her own time, energy, technical abilities and understanding. How these personal resources are applied, and if they will be applied to a particular problem, depends on the worldview of the engineer.

Worldview, or how a person sees life and the world at large, plays a part in determining motivations and behaviors. This is particularly true of young people when they are deciding on a career path. A four year degree in engineering is a significant amount of very hard work for an extended length of time, and can cost a lot of money. Why would someone make such an investment? What are the motivating factors? Of course, there are the enticements of high salaries and prestige. But with lower percentages of American students currently choosing science and engineering than in other major nations of the world, maybe it’s time to rethink the adequacy of such motivations. A recent *New York Times* editorial by Columbia University physicist and Author, Brian Greene, strongly advocates teaching science in a way that includes its dramatic implications for worldview. He emphasized “the powerful role science can play in giving life context and meaning”. He suggested that instead of just focusing on the technical details, “science needs to be taught to the young and communicated to the mature in a manner that captures this drama. We must embark on a cultural shift that places science in its rightful place alongside music, art and literature as an indispensable part of what makes life worth

living.”¹ As a whole, American youth enjoy a level of prosperity and comfort that is considerably higher than nearly all the rest of the world. Is it possible that they are already so comfortable that they would rather not put forth the effort needed for the successful completion of a degree in science or engineering? Perhaps worldview considerations might provide additional and more effective motivation for such endeavors.

Everyone has a worldview, which typically takes shape based on various life experiences such as formal education and personal relationships. But people generally don't think much about their worldview. They tend to lose sight of the forest for the trees. That is, they get so bogged down in the details of their lives that they tend to ignore the big questions involving overall worldview. Sometimes they establish a particular worldview early in their lives and try to force-fit any newly learned information into an old and outdated worldview. Many peoples' worldviews are established, or significantly modified, during their higher education experience because this is when they receive a huge influx of information from diverse fields and meet many new and interesting people. Thus, the university setting is an excellent place to investigate issues related to worldview. This paper gives a taste of the content of a university course for engineers on evaluating worldview, but does not discuss the pedagogy or assessment of such a course.

The purpose of this paper is to discuss the value and method of testing one's worldview to see how well it matches with reality. A further purpose is to propose and support the idea that an “engineering mindset” is particularly applicable to the accurate formation and testing of a worldview. Engineers are in the business of gathering diverse pieces of information and trying to make some practical sense of it all. Typically this results in the synthesis of some complex device or system that makes extensive use of the laws of nature. That is, they understand how the world works to a substantial degree, and they make use of this knowledge in an attempt to improve the human condition. Furthermore, engineers often find themselves engaged in the reverse process, in which they carefully dissect an existing device or system in order to learn its secrets, or discover how it is supposed to work. This process, which is known as reverse engineering, is actually a microcosm of our ongoing effort to understand all that we can about ourselves and the universe in which we live. This idea was introduced by the author at the 2008 ASEE Annual Conference in a paper entitled “The Applicability of Engineering Design Principles in Formulating a Coherent Cosmology and Worldview.”² This paper continues that theme by describing how engineering students at Oral Roberts University are encouraged to investigate the evidence and think critically regarding the components of their worldviews by using appropriate tests. These tests, along with the standard components of worldview, are discussed in the next section.

Worldview Components and Tests

According to philosopher Kenneth Samples' book, *A World of Difference*, there are six major components that make up the conceptual heart of any worldview. They are:

1. Theology – Concept of **God**, or absence of such
2. Metaphysics – View of external **reality**, especially the cosmos
3. Epistemology – Study of the origin, nature, limits and validity of **knowledge**
4. Axiology – Study of the origin, nature, meaning and criteria of **values**

5. Anthropology – Study of the origin, nature, problems and destiny of **human beings**
6. History – Study of the nature, direction and purpose of unfolding **historical events**³

These are the most important categories of knowledge for thinking about the world, its meaning, and basically how it works. A person's collection of beliefs in these areas will determine thinking, motivation, and behavior, making it of critical importance for living a successful life. For the purpose of evaluating worldview, Samples also suggests the following nine tests:

1. Coherence – Is it logically consistent?
2. Balance – Is it appropriately balanced between simplicity and complexity?
3. Power & Scope – How well does it explain and how wide is the range of explanation?
4. Correspondence – Does it correspond to empirical facts and human experience?
5. Verification – Can the central truth-claims be verified or falsified?
6. Pragmatic – Does it promote relevant, practical, and workable results?
7. Existential – Does it address the internal needs, desires, and aspirations of humanity?
8. Cumulative – Is it supported by multiple lines of converging evidence?
9. Competitive – Can it successfully compete in the marketplace of ideas?⁴

Scientists and engineers typically have a very high regard for truth because they daily experience the value, indeed the profitability, of having an accurate representation of physical reality. However, they also understand that their representations are probably not perfect. Engineers are especially in-tune to the idea that full and complete knowledge of all aspects of a project need not be attained before decisions are made to finalize a “good-enough” design and get the product “out the door”. Samples confirms this same idea with regard to worldview decisions when he writes, “No worldview is perfect in explaining reality. Instead, a worldview functions much like a scientific model in its attempt to provide a broad and general explanatory theory about reality. Lack of perfection should not prevent anyone from evaluating various positions and embracing the one that scores highest on the nine critical tests.”⁵ Students evaluate their own worldviews using these tests, while keeping in mind the dangers of egocentric and sociocentric thinking to the process of critical thinking.⁶ Since most of the students that attend Oral Roberts University profess a belief in the historic Christian worldview, it will be used as an example in the next section by applying the nine tests listed above.

Evaluation of the Historic Christian Worldview

Before evaluating the worldview known as Christian Theism, it may be helpful to summarize its perspectives on each of the major worldview components. Samples provides the following:

1. **Theology** – God is an infinite, eternal, immutable, morally perfect, and tri-personal spiritual being (Triune); the transcendent Creator and sovereign Sustainer of all things.
2. **Metaphysics** – The time-space-matter universe was created by God ex nihilo and thus has a real existence, yet is dependent upon God's providential power, control, and guidance.

3. **Epistemology** – Authentic knowledge (of God, the self, and the world) is available to man through God’s general and special revelation (via the created order and redemptive actions).
4. **Axiology** – Objective, universal, unchanging and prescriptive moral values exist (absolutes) and find their source and ground in God’s perfect and immutable moral character.
5. **Anthropology** – Human beings were created in the image of God (as rational, moral, and spiritual beings) but have misused their freedom in order to sin and thus need redemption in Christ.
6. **History** – The linear direction of historical events is ordained by God and unfolds according to his sovereign will (including creation, fall, redemption, glorification and new creation).⁷

In applying each of the nine tests to this worldview, the application of the “engineering mindset” will be briefly demonstrated with varying degrees of effectiveness. This is obviously not intended to be an exhaustive evaluation, but simply an example demonstrating the usefulness of engineering principles in this regard. Objective evaluation is facilitated by keeping an ever-vigilant lookout for egocentric thinking (It’s true because I believe it, or because I want to believe it, or because it’s in my selfish interest to believe it.) and sociocentric thinking (It’s true because my family, culture, nation, society, or religious group believes it.). Let’s now apply each of the tests.

1. Coherence – Is it logically consistent?

Most of the training that engineers receive in school is based on systems of mathematical or scientific thought. In order to achieve successful engineering outcomes, it is vital that these systems be logically consistent. Thus, engineers generally have a profound appreciation for the value and utility of logically consistent systems of thought. This is recognized at the university level in the maturation process of engineering students who may not have liked math in high school, but later acknowledge its inherent power and beauty in describing the physical world. How is it that humans are able to engage in such coherent reasoning? How is it that these systems of thought even exist in the first place? Scientist Eugene Wigner discusses this enigma in a famous paper entitled “The Unreasonable Effectiveness of Mathematics in the Natural Sciences” where he concludes, “The miracle of the appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift which we neither understand nor deserve.”⁸

Christian theism provides a sufficient and meaningful basis for rationality. It also supplies an adequate explanation for why reason and rationality exist in the universe. It holds that a perfectly rational being, God, is the ontological ground and source of reason. Therefore such conceptual realities as logic, mathematics, knowledge, and truth flow from a supremely intelligent divine mind. And because God made human beings in his image with rational faculties and sensory organs that generally function properly, humans are able to discover the world’s basic intelligible and empirical order. The omniscient and wise Creator (working like a transcendent cosmic computer engineer) networked the intelligibility of the world with the minds of human beings. In addition, while the great

revealed truths of historic Christianity cannot be fully comprehended or fathomed by human reason, they do not violate reason. Mystery always accompanies divinely revealed truths, but those truths are not formally at odds with the laws of logic, for God is the source of both.⁹

However, there are some Christian doctrines that face charges of alleged incoherence. One of the most troubling is how God can be all-powerful and all-good in the midst of such extensive evil, pain and suffering as is daily observed and experienced in our world. At first, this issue may seem to be well out of reach of the engineering mindset, but actually the required analysis involves considerations of purpose, requirements, constraints, and the associated tradeoffs that are common to the practice of engineering. First of all, the acknowledgement of evil presupposes an ultimate standard of goodness, which appears to be beyond the mere conventions of humans, and yet clearly understood by everyone. Love is universally understood to be one of the greatest goods that humans are able to demonstrate. This appears to be consistent with God's purpose to establish eternal love relationships with people. However, it seems that love is a pretty tricky business to engineer, even for God. As far as we know, only spiritual beings with free-will are capable of real love. The necessity of free-will imposes a constraint that restricts the systems that God can use to accomplish his purposes. It is plausible that such a system would necessarily involve the introduction of evil and hence pain and suffering. This situation then appears to be a failure on God's part, or at least a defamation of his character.

Engineer and author Henry Petroski has written multiple books investigating the key role of failure in successful engineering designs. In his latest book, *Success through Failure: the Paradox of Design*, he writes "Failure is thus a unifying principle in the design of things large and small, hard and soft, real and imagined... Whatever is being designed, success is achieved by properly anticipating and obviating failure."¹⁰ This idea may help to shed light on the story of fall and redemption that is central to the Christian worldview. Engineering educators know that failure is an important part of gaining knowledge. Matt Green and Paul Leiffer, Engineering Professors at LeTourneau University call this "Flearning" as described in a recent conference paper, "Failure is often how students realize that some things work better than others, and some do not work at all. Failure clearly and eloquently demonstrates the real world phenomena [that] computer simulations or pencil-and-paper calculations fail to capture. Milestone-driven prototyping with specific goals in mind encourages "Flearning," learning catalyzed by failure, which is critical to the design process."¹¹ Thus, we can see how God uses our failures to teach us important truths, causing good to come out of seemingly bad situations. In this way, God literally "makes the Devil work for him." This concept is recognized as an important part of the inventive process of creative problem solving as described in Semyon Savransky's book entitled *Engineering of Creativity: Introduction to TRIZ Methodology of Inventive Problem Solving*.¹²

2. Balance – Is it appropriately balanced between simplicity and complexity?

With regard to understanding and explaining how the universe works, Einstein once said that everything should be made as simple as possible, but not simpler. This is the idea with the balance test. An accurate worldview should be sophisticated enough to account for all the subtleties of reality, but not more complicated than it needs to be. This idea is reminiscent of a famous principle that is often used in science called “Ockham’s Razor”, which states that the simplest explanation that fits the data is most likely the correct one. Christian theism has the necessary metaphysical complexity to account for both the material and immaterial aspects of reality. In contrast, naturalism strains to account for nonempirical abstract entities such as logic, propositions, universals, mathematics, values, and so forth.¹³

Studies in quantum mechanics and cosmology now suggest that there are more dimensions of space, and possibly time, than the four that we experience every day. The implication is that our universe resides in a much larger space-time reality that may include many other universes, or a transcendent being who is responsible for engineering our universe. If these extra dimensions truly exist, this would help to explain difficult doctrines of the Christian worldview such as the Trinity and free will vs. predestination. It would also help to explain some of the miraculous accounts surrounding the life of Jesus that are central to the Christian worldview.¹⁴ From an engineering perspective, it is not unusual that God would choose to engineer us in a space-time realm with fewer dimensions than he resides in. Isn’t that exactly what human engineers do when they get an idea, and they need to work out its details? They pull out a two-dimensional sheet of paper, or make use of a 2-D computer screen, and begin to sketch out the design. Often this process culminates in very detailed and complex two-dimensional blueprints before production of the final three-dimensional prototype is approved and executed. Perhaps humans exercise this kind of creativity and this method of engineering simply because they’re made in God’s image.

3. Power & Scope – How well does it explain and how wide is the range of explanation?

According to philosopher William Wainwright, “Metaphysical theories are better when they explain a wider range of phenomena. A system that illuminates humanity’s scientific, moral, aesthetic, and religious experience, for example, is superior to one that only illuminates science.”¹⁵ The historic Christian viewpoint accounts for the vast array of realities in nature and in human experience, including the universe, abstract entities, ethics, human beings, and religious phenomena.¹⁶ Systems engineering is the synthesis of diverse information and resources into a combination of complex subsystems that work together as a unified whole to solve some problem or accomplish some purpose. A systems engineering mindset is useful in thinking about the power and scope of a worldview because diverse elements of the worldview must come together to form a unified explanation that makes sense. Engineers who have experience with complex systems are better able to engage in this kind of analysis.

4. Correspondence – Does it correspond to empirical facts and human experience?

Throughout history, Christianity has generally demonstrated respect for the empirical findings from nature. The fact that the origin of modern science is due to the strong influence of Christian theism has been well documented.¹⁷ However, this does not mean that occasional contradictions will not arise between science and Christian theology. But such occurrences should not be surprising or troubling for the Christian. It is helpful to remember that neither science nor theology hold complete and inerrant truth. Science is our best interpretation of the facts about nature, but it is still a human interpretation of the facts, and thus subject to error. Likewise, theology is mankind's best interpretation of the facts about God, based largely on the Bible. As such, it is also subject to errors of interpretation. Therefore, contradictions between current science and theology do not necessarily imply that the facts regarding nature and the divine do not correspond. An example of such a controversy is the young-earth interpretation of the Genesis account, which holds that the earth and the rest of the universe have only been in existence for a few thousands of years. This may, or may not, turn out to be true, but it is helpful to realize that there are other valid and scholarly interpretations of Genesis which align very closely with our current understanding of nature and its history.

5. Verification – Can the central truth-claims be verified or falsified?

The value and profitability of the fields of science and engineering are due largely to the fact that their hypotheses, theories, and practices are continually subjected to appropriate testing. In this way, errors and deficiencies can be corrected and the body of knowledge is further refined. Likewise, it is important that the central truth-claims of a worldview be verifiable or falsifiable since claims that lack this characteristic cannot be investigated, evaluated, and critiqued, thus carrying little rational weight. 'Testability increases a worldview's intellectual credibility. The concept of "testable truth" contains persuasive power.'¹⁸ Engineers use several different methods for testing reality, such as theoretical calculations, computer simulations, and experimental testing in the laboratory. They typically look for good agreement among such methods before proceeding with a design-related decision.

However, the approach to verification or falsification of worldview truth-claims can be somewhat different from that of verifying the material properties of a specimen in the engineering laboratory. The major truth-claims of Christianity are rooted in historical fact. This is an area where engineering principles may not be as useful, but that does not mean that such claims are not open to the rigors of historical investigation. The key historical event of the Christian worldview is Jesus' resurrection. Christianity could theoretically be falsified by providing convincing evidence that this event never occurred. The apostle Paul admits as much in his first letter to the Corinthians. On the other hand, overwhelming evidence for Jesus' resurrection can also verify the truth of Christianity. On the surface, this may appear to be a totally unbelievable event because it does not conform to our normal experiences of life and death. But there are many examples of unusual historical events that don't correspond to our everyday experience. Nevertheless, we have significant evidence that events like the Big Bang, total solar eclipses, the first moon landing, and major earthquakes have actually occurred. Careful research has

resulted in six primary strands of evidence to support the historical and factual nature of Jesus' bodily resurrection:

1. the empty tomb
2. Jesus' post-crucifixion appearances
3. the transformation of the apostles
4. the conversion and transformation of Saul of Tarsus into the apostle Paul
5. the emergence of the Christian church
6. the day of worship shifted from the seventh to the first day of the week¹⁹

In addition to this kind of evidence, philosopher Richard Swinburne, in his book *The Resurrection of God Incarnate*, presents the evidence from natural theology for the existence of a God who has some reason to miraculously intervene on Jesus' behalf, him being uniquely the kind of person whom God would have raised. Swinburne argues that God has reason to interfere in history by becoming incarnate, and that it is highly improbable that we would find the evidence we do for the life and teaching of Jesus, as well as the evidence from witnesses to his empty tomb and later appearances, if Jesus was not God incarnate and did not rise from the dead.²⁰ These streams of evidence from history and philosophy combine to increase the plausibility of Jesus' resurrection, but there is yet another kind of evidence that is readily available and may be quite powerful, although somewhat mysterious. If Jesus really is alive and desiring to have an intimate relationship with all those who are willing, then one should be able to conduct a kind of "devotional experiment"²¹ by seeking such relationship with a sincere and contrite heart. Christians readily testify to the reality of this relationship and the ways it has positively and dramatically impacted their lives. This internal reality is probably the most convincing evidence of all, but alas, it arrives after the fact. Could it be that God has engineered things to work this way, being consistent with the non-compelling nature of love relationships and the necessary involvement of an element of faith?

6. Pragmatic – Does it promote relevant, practical, and workable results?

Engineers make their living by developing relevant, practical, and workable products and systems. If they do not continually tend to such essential pragmatism, they will quickly go out of business. Likewise, a worldview that is not relevant, practical, and workable may not be in business for long. Engineers are trained to conduct a broad range of problem solving activities. But like everyone else, they can sometimes be at a loss for how to solve problems in their own personal lives, such as character flaws, immorality, broken relationships, and guilt. The Christian worldview has been found by many people to provide an extremely effective solution to these kinds of problems. It provides the educational, economic, legal, political, moral, and spiritual framework and incentives (as well as safeguards) necessary to promote a healthy and thriving culture. By virtue of the high value placed on human beings, it is not surprising that Christians have led the way in establishing many of the world's charitable organizations.²² It has become popular in some circles to emphasize abuses that have occurred under the guise of Christianity, but these must be weighed against all the good for which it has been responsible over the past two millennia. Engineers evaluate the utility of various scientific truths for potential use

in the development of new technologies. This ability should also assist in their evaluation of the utility of various worldviews in solving the problem of life's meaning and purpose. It seems clear that the Christian worldview, if true, offers an extremely relevant, practical, and workable form of truth that provides value to humans that far exceeds anything in this world. This alone should be reason enough to investigate it thoroughly and test it extensively before dismissing it.

7. Existential – Does it address the internal needs, desires, and aspirations of humanity?

A worldview should address humanity's desire for meaning, purpose, and significance, but only if such existential satisfaction really exists. It should also help to explain why human beings are the way they are. Engineers survey natural resources and determine their best uses for the good of mankind. From a reverse engineering point of view, it seems that the best use of humans would have something to do with our innate capacity to love, and our strong desire to receive love. That is one good and satisfying thing that humans are capable of, which can't be obtained from other sources in the universe. And yet, this is an area of our lives that is so challenging to get right. We sense our great potential as loving beings, but are confronted with the realities of selfishness, apathy, and broken relationships. As famous blues guitarist Eric Clapton once wrote, "Why does love got to be so sad?" Love is a mystery that may be unraveled only through fully engaging in the relationships of our lives. The Christian worldview has a lot to say about love as the pinnacle and purpose of the human experience. But it also explains the need for our hearts to be restored to their original working condition through the loving sacrifice of Jesus. In fact, Christianity claims a defining revelation that, "This is how we know what love is: Jesus Christ laid down his life for us."²³ Apparently, the engineering of eternal love relationships inevitably involves the acquisition of wisdom that comes through the process of rebellion, repentance and redemption of the human heart. Again, a powerful evidence for the truth of Christian Theism can be found in the readily available testimonies that such existential satisfaction is currently being experienced.

8. Cumulative – Is it supported by multiple lines of converging evidence?

During my days as an undergraduate engineering student at Purdue, I enjoyed participating in their cooperative work-study program in the aerospace industry. It was there that I first interacted with experienced engineers on a daily basis. And it was there that I learned the importance of striving for absolute reliability in engineering solutions. Good engineers use redundancy and multiple lines of evidence and reasoning to avoid failure. This was vividly brought to my attention as a co-op student when I was introduced to the concept of a "belt and suspenders" design. This kind of design includes built-in redundancy mechanisms for additional confidence of success. What made the lesson especially memorable was when, upon completion of our meeting, as my mentor was leaving the office, I noticed that he really was wearing both a belt and suspenders to keep his pants up. Thus, engineers understand the importance of a cumulative case of supporting evidence, and may require more than the average amount of evidence, and possibly from a broader range of sources, to be convinced of any particular proposition.²⁴

C.S. Lewis nicely described the cumulative nature of the evidence for Christian Theism when he wrote about the basis for his belief, “I believe in Christianity as I believe the sun has risen, not only because I see it, but because by it I see everything else.”²⁵ Virtually every field of study contributes to the veracity of the Christian worldview, as illustrated by the following brief list:

1. **Cosmology** – The universe had a singular beginning (big bang cosmology); there was a beginning of time.
2. **Astrophysics** – Nature’s laws appear to be engineered (fine-tuned) to allow for human life (anthropic principle); so do the universe’s content and systems (galaxies, stars, planets, chemical elements, etc.).
3. **Biology/Chemistry** – Life systems and ecosystems yield evidence of having been intelligently engineered.
4. **Anthropology/Psychology** – Human beings are richly endowed intellectually but morally flawed.
5. **Neuroscience** – Humans possess consciousness and a capacity for intentionality and rational reflection.
6. **Mathematics** – Mathematical theories correspond with physical reality.
7. **Logic** – As abstract entities, the laws of logic are universal, invariant, and independent of human conventions.
8. **Ethics** – Moral absolutes seem intuitively authentic, and moral relativism is self-defeating.
9. **Religion** – Belief in the divine is a universal phenomenon and religious experience seems intuitively real and consistent with biblical revelation.
10. **History** – Credible historical reports corroborate the life, death, and resurrection of Jesus Christ.
11. **Philosophy** – Human beings crave meaning purpose and immortality.²⁶

Philosopher Douglas Geivett, in his article, “David Hume and a Cumulative Case Argument”²⁷ makes this evidence even more compelling by suggesting a particular order of presentation which adds to its explanatory power. This is especially important for scientists and engineers since it begins with natural theology based on the general revelation, which then serves as a rational basis for the special revelation found in the bible. It begins with cosmological and design evidence and then moves to a study of the human condition as a means of establishing the need for additional revelation. This revelation is assumed to reside in the arena of religious traditions, where evidence of miracles, especially surrounding the life, death and resurrection of Jesus are significant. This then naturally leads to the execution of a devotional experiment, as mentioned earlier, to test the validity of these ideas. According to the Christian worldview, any sincere seeker of truth will then enjoy a genuine religious experience of reconciliation to their creator, which will be evidenced by a changed life and an assurance of salvation. It is interesting to note the importance of scientific evidence and engineering concepts in the development of this case.

9. Competitive – Can it successfully compete in the marketplace of ideas?

Engineers know that the long-term success of a product in the market place is driven by how well it has been engineered to meet people's needs, hopes, and desires. Such a well-engineered product will persuade new customers of its value, even as repeat customers spread the word about their satisfaction. Something very much like this has happened over the history of Christian Theism. Philosophers J.P. Moreland and William Lane Craig illustrate in their book, *Philosophical Foundations for a Christian Worldview*²⁸, that the ratio of non-Christians to committed Christians has been decreasing steadily ever since the first century. The following table presents the numbers published by the Lausanne Statistics Task Force of the U.S. Center for World Mission:

Date	Non-Christians (millions)	Committed Christians (millions)	Column 2 divided by Column 3
100 AD	180	0.5	360
1000 AD	220	1	220
1500 AD	344	5	69
1900 AD	1,062	40	27
1950 AD	1,650	80	21
1980 AD	3,025	275	11
1989 AD	3,438	500	7

The obvious trend which has persisted from the beginning of Christianity tells a striking tale of customer satisfaction. If "the proof is in the pudding," then it's no wonder that the bible encourages its readers to "Taste and see that the Lord is good; blessed is the man who takes refuge in him."²⁹

Conclusions

A portion of the content of a course dealing with worldview evaluation for undergraduate engineering students is discussed and reasons are given for why engineers are well-equipped for such an exercise. Additional information on this course was presented at the 2008 Christian Engineering Education Conference.³⁰ As an example, the Christian worldview is evaluated based on a comprehensive set of nine tests, in which it fairs pretty well. Perhaps the reason why the engineering mindset is so helpful in this pursuit is because the Christian worldview presents a picture of a transcendent engineer who has designed this universe as a laboratory where humans can gain the wisdom needed to participate in eternal love relationships.³¹ Anecdotal evidence suggests that engineering students who participate in this course find inspiration and motivation for a fulfilling life, infused with purpose, and marked by service and mission.

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Biographical Information

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Dominic M. Halsmer is Dean of the School of Science and Engineering at Oral Roberts University where he has been teaching engineering for 16 years. He received BS and MS Degrees in Aeronautical and Astronautical Engineering from Purdue University, and a PhD in Mechanical Engineering from UCLA in 1992. His current research interests include contributions from the field of engineering to the current science/theology dialogue.