

DECADE OF DESIGN: MEDIA FRAMING OF "INTELLIGENT DESIGN" AS A
RELIGIOUS / UNSCIENTIFIC CONCEPT OR A SCIENTIFIC / UNRELIGIOUS CONCEPT
FROM 2000 TO 2009

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Abstract

The debate over human origins was a prominent fixture of U.S. news coverage during the first decade of the 21st century. During this period, U.S. news media featured regular portrayals of an all-out culture war between supporters of biological evolution and advocates of so-called “rival theories” of human origins. In the end, this war would cost American taxpayers millions of dollars in legal fees, confuse science students, divide communities with unparalleled animosities, and alter public policy at the city, county and state level. While there have been previous content analyses performed on U.S. newspaper coverage of evolution and its primary challenger, an idea called "intelligent design," these analyses have tended to be somewhat informal (Mooney & Nisbet, 2005) or lacking (Martin, et al., 2006). The following study addresses these gaps in the literature. Using content analysis, the following study examines hard news coverage of intelligent design presented in 12 U.S. newspapers of varying circulation size and storytelling influence. A final sample of 421 newspaper articles originally published between the years 2000 and the end of the year 2009 is analyzed herein. Results demonstrate that U.S. newspapers initially framed intelligent design as primarily a religious / unscientific concept, but that intelligent design was increasingly framed as a scientific / unreligious concept leading up to, during and after the landmark 2005 *Kitzmiller v. Dover* trial. Additionally, this study finds no significant differences in framing intelligent design as a religious / unscientific or scientific / unreligious concept by dedicated science reporters and non-science reporters.

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CHAPTER 1 - Introduction

The past decade of debate over "intelligent design" and its introduction into the United States public school science curriculum as an "alternative" to the theory of biological evolution has cost taxpayers millions of dollars in legal fees (Forrest & Gross, 2007). Feuds over intelligent design have divided local communities with unparalleled animosities, confused public school science students, altered public policy at the city, county, and state level, affected the course of political elections, and peppered U.S. news media with stories and commentary that might have intentionally or unintentionally distorted the issue (Binder, 2007; Lebo, 2008; Mooney & Nisbet, 2005; Rosenhouse & Branch, 2006; Scott, 2009; Tietge, 2008).

Thus, the conflict over placing intelligent design alongside biological evolution in U.S. public school science curriculum has resulted in very real economic and sociopolitical consequences. Due to these consequences – and because the debate over intelligent design is now viewed as part of a recurring conflict over human origins (e.g., Winograd & Hais, 2008) – it is perhaps more important than ever for communication researchers, journalists, and political officials to understand what intelligent design is and how it has been portrayed in the U.S. news media. The first issue, what intelligent is, will be briefly discussed in the following section of this paper. Discussion on the nature of intelligent design will lead directly to the second and more pressing issue, how intelligent design has been portrayed in the U.S. news media.

Exploratory in nature, the present study focuses on describing trends found in print newspaper coverage regarding intelligent design. A systematic content analysis of news stories relating to intelligent design found in 12 U.S. newspapers of varying circulation size and influence – including the *New York Times*, *USA Today*, the *Washington Post*, the *Wall Street*

Journal, and the *Los Angeles Times* – is undertaken herein. Underpinning and guiding this study are three overall goals: 1) to determine whether the news media framed intelligent design primarily as a religious / unscientific concept or primarily as a scientific / unreligious concept, 2) to elucidate any differences in media framing of intelligent design between dedicated science reporters and non-science reporters and, 3) to ascertain any changes in framing of intelligent design that occurred over the designated 10-year time period. Ultimately, this study asks: How did 12 U.S. newspapers of varying circulation size and influence cover intelligent design over a ten-year period, from the year 2000 to the end of 2009?

CHAPTER 2 - Review of Literature

Intelligent Design

To begin to answer questions about news media framing of intelligent design it is first necessary to understand what intelligent design is. Generally speaking, intelligent design refers to both the intelligent design movement as a whole – the scientists, lawyers, and other supporters of intelligent design – and the “theory” or concept of intelligent design advanced by those in the movement. As a “theory” or concept, intelligent design can be defined in one of two ways, depending on whether one is an advocate or opponent of intelligent design.

Advocates of intelligent design maintain that it is a true “scientific theory” capable of explaining not only human origins, but the origins of all life on planet Earth. Plainly stated, intelligent design is an idea which argues that biological organisms – or some of their component parts – are simply “too complex” to have arisen through evolutionary processes and therefore must be the product of an intelligent agent (Dixon, 2008; Haught, 2001; House, 2008; Wells, 2006; Young & Edis, 2004). More specifically, intelligent design argues that, "Nature exhibits patterns that are best explained as the products of an intelligent cause (design) rather than an undirected material process (chance and necessity)" (Dembski & McDowell, 2008, 26). Human beings and other natural life forms are thus seen as the result of a deliberate design by an intelligent artificer, and are not believed to have originated through processes espoused by biological evolution, such as natural selection, mutation, and genetic drift (Behe, 1998; Behe, 2007; Dembski & Wells, 2008; Hunter, 2007; Pearcey & Johnson, 2005; Wells, 2006).

This, in a nutshell, is the general view of those in favor of intelligent design. In direct contrast to this view, opponents of intelligent design maintain that it is a "pseudoscientific" and inherently religious idea, with only a few tangentially related academic papers in support of its

core claims (Forrest & Gross, 2004). Opponents of intelligent design argue that the theory of biological evolution, defined loosely as the “ process of gradual change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics,” (Evolution, 2010) has built on over one hundred years of solid academic research. Slowly but surely, a convergence of scholarship in the fields of biology, molecular biology, archaeology, biological anthropology, genetics, biochemistry, and other related fields, have been approaching a sufficient explanation of how large-scale, macro-level evolutionary processes occur (e.g., Coyne, 2010; Dawkins, 2009; Petty & Godfrey, 2007).

To opponents then, intelligent design should not be taught in U.S. public school biology classrooms alongside evolution because, in their eyes, the idea simply does not represent legitimate science founded on reliable and valid empirical evidence. Instead, opponents widely regard intelligent design as a religious and politically motivated concept “masquerading” as a scientific concept in order to avoid established laws (Calvi & Coleman, 1994, 167) barring the teaching of religious ideas in U.S. public schools (Forrest & Gross, 2004; Miller, 2008; Shermer, 2002; Shermer, 2006). Shermer (2006) further contends that intelligent design advocates consistently bypass traditional academic avenues for advancing a scientific theory – namely, decades of empirical research and peer-review publication scrutiny – by "lobbying" school boards to “force” (91) intelligent design into U.S. public school science curriculum.

When advocates of intelligent design have succeeded in “forcing” their ideas in U.S. public school biology curriculum, lawsuits have tended to follow. Most notable among these lawsuits is 2005's *Kitzmiller v. Dover Area School District*. In that particular case, 11 parents sued the Dover, Pennsylvania area school board for attempting to "indoctrinate" their children with religion after the board mandated intelligent design be taught alongside evolution in high

school biology class (Kitzmiller, 2005; Lebo, 2008). Fueled from publicity over President George W. Bush's earlier endorsement of intelligent design, the federal case drew international news media attention (Beale, 2005). Eventually, the trial ended in defeat for advocates of intelligent design, which was deemed by *Kitzmiller's* presiding judge to be a "religious view, a mere re-labeling of creationism, and not a scientific theory" (Kitzmiller, 2005). As a result, it is clear that many of those in the scientific community and key members of the legal community like *Kitzmiller's* Judge Jones remain staunchly opposed to intelligent design as a tenable "scientific theory" worthy of being considered an "alternative" to biological evolution.

Media Framing of Intelligent Design

Despite *Kitzmiller*, the question remains: does U.S. news media tend to frame intelligent design as the majorities in the scientific and legal communities see it, as a religious and unscientific concept? Or, conversely, does U.S. news media ignore scientific and legal consensus by framing intelligent design primarily as a scientific and unreligious concept?

Using the theory of media framing (e.g., Tewksbury & Scheufele, 2009), a previous study (Martin, Trammell, Landers, Valois, & Bailey, 2006) examined framing of intelligent design in U.S. newspaper coverage, and found that newspaper coverage framed intelligent design as primarily a religious idea, or both a religious and scientific idea (56). However, Martin et al. (2006) suffers from several key confounds not addressed by the authors. One of these confounds owes to the fact the authors analyzed content published in U.S. newspapers before or during 2003. That is, the news content analyzed in the study was published a full two years before intelligent design came to the public's full attention during the landmark 2005 *Kitzmiller v. Dover* trial. What's more, much of Martin et. al's (2006) sample consisted of editorials, letters to the editor, columns and commentary. Including these types of articles in a framing analysis

probably skewed Martin et. al's (2006) results, since the journalistic “balance” norm – presenting arguments for one side of an issue, followed by arguments for the other side (e.g., Arco, 1999; Harrower, 2009) – doesn't directly apply to editorials, letters to the editor, columns, and commentary. Therefore, while Martin, et. al's (2006) line of inquiry is both valid and pertinent, their methodological approach to the topic might not be.

As a result of Martin, et al.'s (2006) confounds and the aforementioned criticisms of intelligent design posed by media researchers, scientists, and biologists, this study asks:

RQ1: Did U.S. newspapers frame intelligent design as primarily a religious / unscientific concept or as primarily a scientific / unreligious concept?

One further issue not addressed in Martin et al. (2006) or in Mooney and Nisbet's (2005) informal content analysis involves differences in framing of intelligent design by specialized science reporters and non-science reporters. While Mooney and Nisbet's (2005) informal analysis of editorial content printed in the *New York Times*, the *Washington Post*, and several smaller newspapers located in intelligent design battleground states (e.g., Pennsylvania) looked at scientist and non-scientist evaluations of evolution and intelligent design, the authors did not address how intelligent design was covered by dedicated science and non-science reporters.

Since science reporters typically have expertise that general assignment reporters and other kinds of specialized reporters don't have, science reporters might be more inclined to frame intelligent design in a manner more consistent with the bulk of the scientific literature and the consensus scientific opinion. That is, dedicated science reporters might be more likely to frame intelligent design as a religious / unscientific concept, whereas non-science reporters who do not necessarily possess scientific expertise and who do not regularly report on scientific issues might more less likely to frame intelligent design as a religious / unscientific concept.

However, the proposition that science reporters frame intelligent design differently than do non-science reporters has never been addressed specifically relating to the concept of intelligent design. In the past, some studies (e.g., Hansen, 1994) have suggested there may be few, if any, differences between specialized science reporting and non-science reporting of scientific issues. Therefore, to determine if there are differences between how dedicated science reporters and non-science reporters frame intelligent design, this study asks:

RQ2: Did specialized science reporters frame intelligent design differently than did other kinds of reporters in U.S. newspaper coverage of intelligent design?

Finally, this study examines news media framing of intelligent design over time. As was mentioned above, Martin et al.'s (2006) content analysis examined intelligent design prior to and throughout the year 2003. Mooney and Nisbet's (2005) informal analysis of editorial newspaper coverage of intelligent design examined content prior to September 2005. Both studies were conducted prior to the landmark ruling in *Kitzmiller v. Dover*, which was set down by Judge Jones in the last days of December 2005. While it is true that the ruling in *Kitzmiller* did not set legal precedent at the federal level, Jones' ruling is widely regarded as the most definitive judicial statement on intelligent design made in the first decade of the 21st century (e.g., Scott, 2009). It follows that, after the ruling, in which intelligent design was called a "mere re-labeling of creationism," news framing of intelligent design might have changed to reflect the tenor of such an authoritative statement on the concept. Consequently, this study asks:

RQ3: Did U.S. newspaper framing of intelligent design change over time, specifically, during the ten-year period between the years 2000 and the end of 2009?

CHAPTER 3 - Method

Sampling

Using the method of content analysis, a purposive sample of 421 articles was taken from 12 U.S. newspapers of varying circulation sizes (Audit Bureau of Circulations, 2009) and storytelling influence over other news outlets and other news mediums. Articles were first selected from what are usually considered by scholars (Fico, Simon, & Lacy, 1991; Lacy, Fico, & Simon; Miller & Denham, 1994; Potter, 1987; Riffe, Lacy, & Fico, 2005; Simon, Fico, & Lacy, 1989; Stempel & Windhauser, 1989) to be the highest circulation, most influential newspapers in the country: the *Wall Street Journal*, *USA Today*, the *New York Times*, the *Los Angeles Times*, the *Washington Post* and the *Chicago Tribune*. A second category of newspapers with relatively lower circulations and storytelling influence comprised the second group. Each of these newspapers was selected because each newspaper operates out of a key intelligent design battleground state (i.e., a state in which advocates of intelligent design tried to place their ideas in the public school science curriculum). This group of newspapers consisted of the *Philadelphia Inquirer*, the *Cleveland Plain Dealer*, the *Atlanta Journal-Constitution*, the *Columbus Dispatch*, the *Topeka Capital-Journal* (Kansas), and the *York Dispatch* (Pennsylvania).

The LexisNexis Academic database was used to scan archives for articles containing the key phrase "intelligent design". In the case of the *Los Angeles Times* and the *Chicago Tribune*, the author purchased a thirty-day pass in order to scan archives for stories containing the key phrase "intelligent design". This process rendered a total sample of 437 newspaper articles relating to intelligent design. Later, the sample was thoroughly refined to exclude all book reviews, wire service materials, opinion pieces and commentary. After these further refinements, a total sample of 421 news articles relating to intelligent design was rendered.

Included in this final sample were only hard newspaper stories appearing in print between January 1, 2000 and December 31, 2009, and featuring intelligent design or the debate over evolution and intelligent design as the primary subject matter. Articles were also included if they briefly mentioned and defined or qualified intelligent design (i.e., suggested intelligent was a “theory” or related it to creationism in some way). Articles that mentioned intelligent design only in passing without defining it or referencing in any meaningful way, as well as articles that referred to, for example, “intelligent architectural design,” were completely discarded.

Selection of Medium

The medium of the print newspaper was selected for the present study on the basis of the ability to gather and generate original information and influence news coverage presented by other mediums. Research demonstrates that the majority of *original* news reporting derives from print newspapers in highly populated U.S. cities (Pew, 2010). What's more, although the dominance of the printed word has clearly slipped in recent years – as evidenced by diminishing newspaper circulations and subscriptions – many Americans still rely on print newspapers to disseminate the news. The content of broadcast media and Web-based content, meanwhile, remain heavily dependent upon newspaper reporting to set their news agenda and frame their news stories. Thus, the author of the present study decided to employ original material derived from 12 print newspapers on the basis of the print medium’s continued influence.

Coding and Unit of Analysis

Two independent coders were chosen for this study. Since straight news stories tend to be balanced with assertions made by commentators from side A followed by assertions made by commentators from side B in an oscillating, paragraph-by-paragraph format (Arco, 1999; Harrower, 2009), the primary unit of analysis was the paragraph. Instructions were given for

coders to read each paragraph of the sampled article and code the paragraph as framing intelligent design as either a religious / unscientific concept, as a scientific / unreligious concept, both religious / unscientific and scientific / unreligious, or “neutral”.

In terms of paragraphs being coded as “religious / unscientific,” coders were asked to look for explicit references to either intelligent design being an inherently religious or unscientific idea, such as: “ ‘intelligent design’ is religious fundamentalism” (Powell, 2005), or, “Prof. Miller repeated that intelligent design isn't a scientific theory because it hasn't faced rigorous scrutiny by its peers and is filled with untestable allegations” (Sataline, 2005). Additionally, indirect explicit mentions of intelligent design being a religious / unscientific concept were also considered, such as: “ ‘Although proponents of the [intelligent design movement] occasionally suggest that the designer could be a space alien or a time-traveling cell biologist, no serious alternative to God as the designer has been proposed by members’ of the movement” (Weinstein, 2005), or, “ ‘ID is an interesting theological argument, but ... it [intelligent design] is not science,’ Jones wrote in a 139-page ruling” (Lawrence, 2005).

Coders were asked to use similar guidelines to code paragraphs framing intelligent design as a scientific / unreligious concept. Explicit mentions in this regard included such phrases as: “Attorney John H. Calvert defined intelligent design as a scientific theory” (Lee, 2000), or, “It [intelligent design] is not a religious approach” (MacDonald, 2004). What’s more, coders were instructed to examine indirect explicit mentions of intelligent design being a scientific or unreligious concept. These types of references included phrases such as, “Superintendent Richard Nilsen said teachers won't be required to teach intelligent design, *which is a theory* that says the universe, and life, are best explained by an intelligent cause, not an undirected process such as natural selection” (Bernhard-Bubb, 2004, emphasis added), or, “Biochemist argues [that]

intelligent design [is] not [the] same as creationism” (Anderson, 2005).

Meanwhile, any paragraph framing intelligent design as both a religious / unscientific concept *and* a scientific / unreligious concept were coded as containing “both” frames. If a given paragraph made no explicit or indirect explicit mentions of intelligent design’s nature as either a religious / unscientific or scientific / unreligious concept, the paragraph was coded as “neutral” (i.e., the paragraph contained no information framing intelligent design either way).

In data analysis, the total number of paragraphs in an article coded as “both” were divided in half and evenly distributed to the total number of religious / unscientific paragraphs and scientific / unreligious paragraphs. Thus, for example, if there were 10 paragraphs containing both types of frames, five paragraphs were added to the total number of religious / unscientific paragraphs and five were added to the total number of scientific / unreligious paragraphs. If there were only one paragraph containing both types of frames, .5 was added to each side.

Subsequently, the author devised a simple, three-point Likert scale to assess the degree to which each article was framed. If the article possessed an even number of paragraphs or was within .5 paragraphs of framing intelligent design as religious / unscientific or scientific / religious, the article was labeled as “both” and fell on the middle of the scale. If the article was more than .5 paragraphs in favor of intelligent design as a religious / unscientific concept, the article was defined as such. If the article was more than .5 paragraphs in favor of intelligent design as a scientific / unreligious idea, the article fell on that end of the three-point scale.

Finally, coders were asked to research whether the author of the newspaper article was a dedicated science reporter or a non-science reporter. This final task was accomplished by cross-referencing online newspaper staff listings and other reputable Web sites with the name of the reporter or reporters listed on the article. Occasionally, the article retrieved from the LexisNexis

database came with a pre-existing reporter designation such as “[Cleveland] Plain Dealer Science Reporter”. However, even if this designation was present, coders were asked to research each reporter’s credentials in order to check for a specialty in science reporting. In every case, both coders were able to determine if the reporter or reporters were dedicated science reporters or not.

Intercoder Reliability

In all, both coders investigated the abovementioned key characteristics, as well as generic characteristics, across a randomly chosen subsample of 88 articles (about 20% of the sample population). None of the characteristics coded failed to achieve a widely agreed upon minimum 80% agreement among coders (Neuendorf, 2001; Riffe, Lacy & Fico, 2005). Several generic characteristics, such as *newspaper ID #* and *date of publication*, achieved a perfect, $\kappa = 1.0$ level of reliability. Among key characteristics, κ scores were as follows: *paragraphs framing intelligent design as religious / unscientific* (.867), *paragraphs framing intelligent design as scientific / unreligious* (.908), *paragraphs framing intelligent design as both a religious / unscientific and a scientific / unreligious concept* (.838), *“neutral” paragraphs* (.812), *article author a dedicated science reporter or non-science reporter* (.986). Altogether, this resulted in a combined κ score among key characteristics of .899.

CHAPTER 4 - Results

The first research question (*RQ1*) asked whether U.S. newspapers framed intelligent design as primarily a religious / unscientific concept or as primarily a scientific / unreligious concept. Across all 421 newspaper articles analyzed, a total of 212 articles (50.4%) framed intelligent design as primarily a religious / unscientific concept. A total of 118 articles (28.0%) framed intelligent design in a more “equal” or “balanced” manner, as both a religious / unscientific and scientific / unreligious concept. A total of 91 articles (21.6%) framed intelligent design as primarily a scientific / unreligious concept. Thus, it would appear that the majority of newspaper articles analyzed fell on the religious / unscientific end of the spectrum, meaning that the majority of articles analyzed contained more paragraphs with explicit or indirect explicit references to intelligent design as a religious / unscientific concept than paragraphs with similar references to intelligent design as a scientific / unreligious concept (see Table 1).

Nonetheless, despite the fact the majority of news coverage framed intelligent design as primarily a religious / unscientific concept, there was also a significant, dependent relationship ($p < .05$) between newspaper and type of framing. Specifically, it seems that the number of articles framing intelligent design as a primarily religious / unscientific concept, a scientific / religious concept, or both, is dependent upon the newspaper in which the article originally appeared.

At the newspaper-level of analysis, the relationship between newspaper and framing is evident. For instance, the *Wall Street Journal* produced relatively fewer overall articles on intelligent design (7 total) compared to the *New York Times* (46 total). However, six out of the seven total *Wall Street Journal* articles on intelligent design (86%) framed intelligent design as primarily a religious / unscientific concept, while 20 out of the 46 total *New York Times* articles on intelligent design (43%) framed intelligent design as primarily a religious / unscientific

concept. Therefore, it appears that although the majority of articles in 11 out of 12 newspapers analyzed for this study framed intelligent design as primarily a religious / unscientific concept, there were significant differences in framing of intelligent design between newspapers.

INSERT TABLE 1 ABOUT HERE

Research question two (*RQ2*) addressed differences in framing of intelligent design between dedicated science reporters and non-science reporters. Out of a total 421 news articles analyzed, 47 (11.2%) were written by dedicated science reporters. The majority of articles analyzed – 374 (88.8%) – were written by non-science reporters, who were identified by coders as either general assignment reporters or reporters specializing in areas other than science, such as legal affairs, politics, education, or religion (see Table 2).

In terms of coverage of intelligent design as a religious / unscientific or scientific / unreligious concept, there were no significant differences between dedicated science reporters and non-science reporters ($p > .2$). While the majority of articles written by science reporters – 26 out of 47 (55%) – framed intelligent design primarily as a religious / unscientific concept, the majority of articles written by non-science reporters – 186 out of 374 (50%) – also framed intelligent design as primarily a religious / unscientific concept. The relationship between type of reporter and framing of intelligent design was, thus, a strictly independent one. That is, in terms of framing, it didn't matter if the reporter specialized in covering scientific issues or not; he or she tended to frame intelligent design in a manner similar to that of non-science reporters.

INSERT TABLE 2 ABOUT HERE

Finally, the third research question (*RQ3*) asked if U.S. newspaper coverage of intelligent design changed over time, specifically, during the ten-year period between the years 2000 and the end of 2009. To analyze this question, the author broke down the newspaper content into four

time periods. The first time period was called “pre-trial” and included all article published before the American Civil Liberties Union (ACLU) helped Tammy Kitzmiller and 10 co-plaintiffs file a lawsuit against the Dover Area School District on December 14, 2004, which would ultimately lead to *Kitzmiller v. Dover*. Out of a total of 421 newspaper articles analyzed, the total number of articles that fell into this period was 92 (21.9%). The second period was called “suit filed, pre-trial”. This period was represented by newspaper articles that were published on the day the lawsuit was filed and every day after until the day before the *Kitzmiller v. Dover* trial began. Out of a total of 421 newspaper articles analyzed, the total number of articles that fell into this period was 98 (23.3%). The third period was called “trial”. This period includes newspaper articles published during the *Kitzmiller v. Dover* hearings, between September 26, 2005 and December 20, 2005. Out of a total of 421 newspaper articles analyzed, the total number of articles that fell into this period was 103 (24.5%). The fourth and last period was called “ruling, post-trial”. This period consists of newspaper articles that were published on the day of the ruling, December 21, 2005, to the end of the year 2009 (December 31, 2009). Out of a total of 421 newspaper articles analyzed, 128 (30.4%) fell into this period (see Table 3).

The relationship between framing intelligent design as primarily a religious / unscientific or scientific / unreligious concept was dependent ($p < .05$). That is to say, the type of frame used to discuss intelligent design was dependent upon the time period during which the article on intelligent design was published. During the four-year period prior to the ACLU’s filing of the *Kitzmiller* suit, there were relatively few total articles published on intelligent design (92, about 21.9% of the total). After the suit was filed, the amount of newspaper coverage increased, as did the amount of news coverage framing intelligent design as primarily a religious / unscientific concept. For example, although the “trial” period only lasted about three months, there were

more newspaper articles published during this period (103, about 24.5% of the total) than the four-year period leading up to the filing of the suit in federal court. Additionally, while before the *Kitzmiller* suit was filed there were more “balanced” articles framing intelligent as both religious / unscientific and scientific / unreligious, during the trial period there were many more articles framing intelligent design as primarily a religious / unscientific concept (66, about 15.7% of the total). Thus, it would seem that framing of intelligent design as a religious / unscientific concept increased after the *Kitzmiller* suit was filed, as the *Kitzmiller v. Dover* trial ensued, concluded, and the post-*Kitzmiller v. Dover* trial period began.

INSERT TABLE 3 ABOUT HERE

Newspaper framing of intelligent design over time is also illustrated in Figure 1. As the graphic demonstrates, newspaper framing of intelligent design was more “balanced” or “equal” during the period leading up to the filing of the *Kitzmiller* suit. In fact, there were *more* articles framing intelligent as just about equally religious / unscientific and scientific / unreligious during this four-year period than there were articles framing intelligent design as primarily a religious / unscientific concept. However, over time, trends in framing of intelligent design seem to change. The gap between articles framing intelligent design as primarily a religious / unscientific concept and articles framing intelligent design as scientific / unreligious or articles framing intelligent design in both ways begins to widen as time passes. However, as the graphic demonstrates, the number of articles framing intelligent design as more of a scientific / unreligious concept begin to increase in the post-*Kitzmiller* trial period as the number of articles portraying intelligent design as religious / unscientific begins to level off.

INSERT FIGURE 1 ABOUT HERE

CHAPTER 5 - Discussion

The results of this study indicate that newspaper coverage of intelligent design decidedly framed the concept as religious / unscientific in nature, and that this kind of framing increased dramatically over time, seemingly reflecting the consensus scientific view of evolution's legitimacy (Pew, 2009) and intelligent design's illegitimacy (e.g., American Association for the Advancement of Science, 2002) as coverage of the issue became more pronounced. Due to the extensive amount of evidence presented in federal court which demonstrated intelligent design to be a "mere re-labeling of creationism" in *Kitzmiller's* Judge Jones' words (Kitzmiller, 2005), it would appear that news media framing of intelligent design hinged upon the federal trial.

Specifically, prior to *Kitzmiller v. Dover*, newspaper reporters seemed to "balance" their coverage of intelligent design, providing just as much credence to the concept being scientific / unreligious as they did to the concept being religious / unscientific. During and after *Kitzmiller v. Dover*, reporters began to place more emphasis on intelligent design as a religious / unscientific concept. An outpouring of statements against intelligent design made by scientists, historians and legal officials during the *Kitzmiller* trial may have, in part, contributed to a majority of newspaper articles (66) framing intelligent design as religious / unscientific during the three-month trial period, compared to a relatively fewer amount of articles (32) framing intelligent design as primarily religious / unscientific during the entire four-year period leading up to the filing of the federal lawsuit (January 2000 to December 2004). Thus, it seems that by simply airing their grievances against intelligent design in the context of federal court, opponents were able to refocus – or, "reframe" – mediated discourse relating to intelligent design in their favor.

Somewhat surprisingly, the results of this study indicate there were no significant differences in framing intelligent design by science and non-science reporters. In fact, the results

of this study demonstrate that science reporters tended to frame intelligent design as a religious / unscientific concept just as frequently as did non-science reporters during the time period analyzed. This particular finding can be interpreted as especially disheartening in an age of growing scientific illiteracy on the part of the public (Tietge, 2008) and increasing complaints by scientists that science-related journalism suffers from gross inaccuracies (Nelkin, 1995).

That there was little difference in framing of intelligent design by science reporters and non-science reporters is likely due to the journalistic “balance” norm. The journalistic “balance” norm mandates two-sided coverage of any issue, scientific or otherwise, and both science and non-science reporters alike must adhere to the norm (ARCO, 1999; Harrower, 2009). Previous studies (e.g., Hansen, 1994) investigating reporting of scientific topics by science reporters and non-science reporters have also found few differences between these types of reporters. As Hansen (1994) suggests, these non-differences may be due to industry demands. Specifically, the industry demands that science reporters be journalists first – reporting issues in the typical “balanced” manner of dueling quotations for side A and side B – and specialists second.

Limitations and Suggestions for Future Research

This study analyzed print newspaper coverage of intelligent design on the basis of print newspaper’s continuing ability to influence coverage of an issue by other news outlets and other mediums, such as television (Pew, 2010). However, during the 10-year period analyzed in this study, and especially during the *Kitzmiller v. Dover* trial, the debate over intelligent design was regularly featured on broadcast and cable television news (Forrest & Gross, 2007; Scott, 2009). What’s more NPR, CBS’s *60 Minutes*, and PBS all featured in-depth coverage of intelligent design in hour- or two-hour long special presentations. Thus, a major limitation of the present study is that there was no analysis of radio and television news coverage of intelligent design. It

is quite likely that more Americans became familiar with intelligent design by watching a debate between its advocates and detractors on Fox News or CNN rather than reading about the concept in the *New York Times*, if only because the former medium reaches a wider audience than does the latter. Due to the fact newspaper circulations diminished considerably during this 10-year period (Audit Bureau of Circulations, 2009), an analysis of television news coverage might shed new light on how media framed intelligent design during this period. Web sites both for and against intelligent design also saw rapid proliferation during this period. An analysis of Web content relating to intelligent design during this period might also prove useful.

Additionally, the present study did not control for the location within an article specific types of frames occurred. That is, the analysis lumped together the total number of paragraphs framing intelligent design as primarily religious / unscientific, scientific / religious, or both, without specifying the location in the article in which these frames were presented. If a headline stated, for example, “Intelligent design is religious,” it was coded the same as the last paragraph of the article, which, for example, might have also stated “intelligent design is religious”. Therefore, it is difficult to assess relationships between the results of this study and effects on public opinion of intelligent design, since most individuals tend to “skim” newspaper headlines and lead paragraphs instead of reading entire articles (e.g. Garcia & Stark, 1991). The location of frames within articles matters, in other words, and future research should account for this.

What’s more, scholars investigating intelligent design might also explore differences in news coverage of intelligent design by geographical region. It is quite possible that results indicating the *Atlanta Journal Constitution* gave slightly more credence to intelligent design as a scientific / unreligious concept (see Table 1) could be due to regional differences in coverage between newspapers located in the American South – a region usually associated with higher

levels of religious belief, particularly in Christianity – and newspapers located in the American Northeast – a region usually associated with relatively lower levels of religious belief. Finally, Stempien and Coleman’s (1985) analysis of creationists’ and evolutionists’ rhetorical techniques as evidenced in 1980s news media coverage might provide a sufficient and easily adaptable framework to study similar techniques evidenced in news media coverage of intelligent design.

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Appendix A - Simplified Codebook

Section A - Introduction to the Topic

The following content analysis examines the topic of "intelligent design." Coders will analyze and code 88 newspaper articles originally printed in 12 American newspapers between the years 2000 and 2009. Each of these articles mentions the issue of "intelligent design."

Before the coding procedure begins, it is appropriate for each coder to become acquainted with the topic. Roughly stated, intelligent design argues that an intelligent agent - sometimes referred to as God, but not necessarily God - created all life in the universe. Intelligent design advocates are based out of Seattle, Washington's Discovery Institute, but their colleagues are located throughout the United States. Over the past decade, advocates of intelligent design have attempted on many occasions to place their ideas into U.S. public school science curriculum as an "alternative" to biological evolution.

Biological evolution, roughly stated, is the idea that naturally occurring organisms change over time through processes of natural selection, adaptation, and genetic mutation. While biological evolution makes no explicit statements regarding the existence or non-existence of a "designer," advocates of intelligent design believe that evolution implies there is no God or other agent who *first* created biological organisms such as human beings. In other words, advocates of intelligent design seek to pit their idea - intelligent design by a supernatural agent - against evolution, which states that organisms arise naturally.

At the heart of the issue is the question: Is intelligent design a valid scientific concept, or is it religious concept? As of right now, it should be noted that no academic council or committee - American or otherwise - recognizes intelligent design is a valid scientific theory or idea. This does not mean that intelligent design could not one day become a valid scientific idea, just that its advocates have not yet performed the research that would make it a viable concept.

Section B - Identifying Information

1. ID#: Identification number of newspaper article/story
2. Newspaper ID: 3-4 letter identification (example: "AJC" or "TYD")
3. Reporter(s) Last Name(s): Identification of the story's reporter(s)
4. Location In Paper: Location in the newspaper the article originally appeared. List all relevant details.
5. Location In Paper: CODE:
 1. *Front Page*
 2. *First Inside/Section Page*
 3. *Inside Page*
 99. *Missing Data*
6. Date of Publication: When was the story was published? (Year / Month / Day)
7. Length: Total number of words in the article.
8. Reporter specialization. CODE:
 1. *Dedicated Science Reporter*
 2. *Non-Science Reporter*
 99. *Missing Data*
9. Paragraph Measurement:
 - A. COUNT AND RECORD the number of paragraphs that suggest intelligent design is a *religious* or *unscientific* concept.
 - B. COUNT AND RECORD the number of paragraphs that suggest intelligent design is a *scientific* or *unreligious* concept.
 - C. COUNT AND RECORD the number of paragraphs that suggest intelligent design is *both* a religious / unscientific or scientific / unreligious concept.
 - D. COUNT AND RECORD the number of paragraphs that are "neutral" (don't suggest intelligent design is either religious or scientific in nature, or have nothing to do with intelligent design/evolution/creationism).

Section C - Science, Religious, and Non-Scientific “Neutral” Exemplars

Terms that Support Intelligent Design as a Scientific / Unreligious Concept:

Theory of intelligent design, scientific theory of intelligent design, intelligent design theory, scientific alternative (to evolution), alternative theory, alternate theory, hypothesis, scientific concept, intelligent design scientists, discipline, academic discipline, science, intelligent design science, scientific discipline

Terms that Support Intelligent Design as a Religious / Unscientific Concept:

The religious concept of intelligent design, religious idea, faith-based belief of intelligent design, religious idea, religious belief, religious view, religious concept, intelligent design creationism, creationist idea/ideas

Examples of Explicit Statements Indicating ID is a Religious / Unscientific Concept:

Intelligent design does not qualify as a theory. Intelligent design is not an alternative to evolution. Critics say intelligent design has roots in religion.

Examples of Indirect Explicit Statements Indicating ID is a Religious / Unscientific Concept:

The “designer” could be “God.” Critics suggest intelligent design may have religious implications.

Examples of Explicit Statements Indicating ID is a Scientific / Unreligious Concept:

Intelligent design is a scientific theory. Intelligent design is a legitimate alternative theory to the theory of biological evolution. Critics say intelligent design is not religious.

Examples of Indirect Explicit Statements Indicating ID is a Scientific / Unreligious Concept:

Scientists wrote a memo to the judge referring to the legitimacy of intelligent design. Leaders are proposing that intelligent design be offered as an alternative to the theory of biological evolution.

Appendix B - List of Tables

Table 1

Religious / Unscientific and Scientific / Unreligious Framing by Newspaper

Name of newspaper	Framing			Total
	Religious / Unscientific	Equally		
		Religious/Unscientific & Scientific/Unreligious	Scientific / Unreligious	
Wall Street Journal	6 (1.7%)	1 (.2%)	0 (.0%)	7 (1.7%)
USA Today	5 (1.2%)	4 (1.0%)	1 (.2%)	10 (2.4%)
New York Times	20 (4.8%)	17 (4.0%)	9 (2.1%)	46 (10.9%)
Los Angeles Times	8 (1.9%)	0 (.0%)	2 (.5%)	10 (2.4%)
Washington Post	18 (4.3%)	4 (1.0%)	4 (1.0%)	26 (6.2%)
Chicago Tribune	6 (1.4%)	0 (.0%)	1 (.2%)	7 (1.7%)
Philadelphia Inquirer	24 (5.7%)	9 (2.1%)	5 (1.2%)	38 (9.0%)
Cleveland Plain Dealer	28 (6.7%)	22 (5.2%)	8 (1.9%)	58 (13.8%)
Atlanta Journal Constitution	7 (1.7%)	6 (1.4%)	8 (1.9%)	21 (5.0%)
Columbus Dispatch	17 (4.0%)	8 (1.9%)	6 (1.4%)	31 (7.4%)
Topeka Capital Journal	12 (2.9%)	11 (2.6%)	6 (1.4%)	29 (6.9%)
York Dispatch	61 (14.5%)	36 (8.6%)	41 (9.7%)	138 (32.8%)
Total	212 (50.4%)	118 (28.0%)	91 (21.6%)	421 (100.0%)

Note: χ^2 (22, N = 421) = 36.38, $p < .05$

Table 2*Religious / Unscientific and Scientific / Unreligious Framing by Science and Non-Science Reporters*

Type of reporter	Framing			Total
	Religious / Unscientific	Equally Religious/Unscientific & Scientific/Unreligious	Scientific / Unreligious	
Science Reporter	26 (6.2%)	15 (3.6%)	6 (1.4%)	47 (11.2%)
Non-Science Reporter	186 (44.2%)	103 (24.5%)	85 (20.2%)	374 (88.8%)
Total	212 (50.4%)	118 (28.0%)	91 (21.6%)	421 (100.0%)

Note: $\chi^2(2, N = 421) = 2.46, p > .2$

Table 3*Religious / Unscientific and Scientific / Unreligious Framing Over Time*

Time period	Framing			Total
	Religious / Unscientific	Equally Religious/Unscientific & Scientific/Unreligious	Scientific / Unreligious	
Pre-Trial (01/01/00-12/13/04)	32 (7.6%)	36 (8.6%)	24 (5.7%)	92 (21.9%)
Suit Filed, Pre-Trial (12/14/04-9/25/05)	41 (9.7%)	30 (7.1%)	27 (6.4%)	98 (23.3%)
Trial (9/26/05-12/20/05)	66 (15.7%)	24 (5.7%)	13 (3.1%)	103 (24.5%)
Ruling, Post-Trial (12/21/05-12/31/09)	73 (17.3%)	28 (6.7%)	27 (6.4%)	128 (30.4%)
Total	212 (50.4%)	118 (28.0%)	91 (21.6%)	421 (100.0%)

Note: χ^2 (6, N = 421) = 23.98, $p < .05$

Appendix C - List of Figures

Figure 1

Religious / Unscientific and Scientific / Unreligious Framing Over Time

