



# McNair Journal

FALL ★ 2004



University of Missouri-Columbia  
McNair Scholars Program





# McNair Journal

VOLUME 12 ★ FALL 2004

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**TRiO**  
RONALD E. MCNAIR  
POST-BACCALAUREATE  
ACHIEVEMENT PROGRAM

On the Cover: McNair Scholar Kimberly Adams

## Message from the Deputy Chancellor



My congratulations go out to all the MU undergraduates who have participated in the McNair Scholars Program during the 2003-2004 academic year. The papers presented here truly represent the hard work, dedication and energy of the scholars, as well as the careful guidance and support of their faculty mentors. Six very diverse topics are explored and reported in their entirety within this interdisciplinary

journal. While their subject matter and journalistic styles may differ, they, along with the other McNair Scholars listed in this publication, share the common goal of pursuing graduate education and contributing to their selected areas of study.

A University-wide effort, the McNair program continues to attract students and faculty mentors from a variety of academic departments and fields of inquiry. Since 1989, students have had the opportunity to learn about the importance and

excitement of earning an advanced degree, while gaining both the insight and skills that will enable them to excel in their endeavors. The McNair Scholars Program honors the spirit and legacy of astronaut and scientist, Dr. Ronald E. McNair, whose accomplishments and high standards set an outstanding example for developing scholars.

Ten years ago my wife, Julie, served as Academic Coordinator of the MU McNair Scholars Program, thus giving me the opportunity to become acquainted with the program. Since then, I have observed its continued growth and success. The faculty mentors, students and program staff are cohesive in their efforts to ensure the preparation for and placement into graduate programs. We are proud to highlight the work of these talented young researchers, in this, the twelfth edition of the *MU McNair Journal*. Our best wishes go out to all of them as they begin to transition from learners charged with acquiring knowledge to scholars engaged in generating it.

Michael A. Middleton  
Deputy Chancellor



### University of Missouri-Columbia McNair Scholars Program

#### Background

College students who are considering study beyond the baccalaureate level realize their dreams through the McNair Scholars Program at the University of Missouri-Columbia (MU). MU was one of the original fourteen universities selected to develop a program established by the U.S. Department of Education and named for astronaut and *Challenger* crew member Ronald E. McNair. The purpose of the program is to provide enriching experiences that prepare eligible students for doctoral study.

#### Program Elements

One of the most dynamic aspects of the McNair Scholars Program is the opportunity for junior or senior undergraduate students to participate in research experiences. McNair Scholars receive stipends to conduct research and engage in other scholarly activities with faculty mentors from the areas in which they hope to pursue graduate study. These research internships are either for the academic year or for the summer session and are under the supervision of faculty mentors. For academic year internships, students work a minimum of ten hours per week during the fall and winter semesters. Summer interns work full-time for eight weeks.

McNair Scholars also attend professional conferences with their mentors, go to graduate school fairs, prepare for

graduate school entrance exams, receive guidance through the graduate school application process and obtain information on securing fellowships, graduate assistantships, and loans. Participants learn about graduate school life, advanced library skills, and effective ways to present their work. At the completion of the research internships at MU, McNair Scholars make formal presentations of their research to faculty and peers at the McNair Scholars Conference and submit papers summarizing their work. Students who participated as juniors the previous year continue in the program during their senior year for graduate school placement and to further develop their skills.

#### Eligibility

Participants must meet grade point average standards; be U.S. citizens or permanent residents; and qualify as either a first generation college student with an income level established by the U.S. Department of Education, or a member of a group that is underrepresented in graduate education.

All students who wish to be involved submit an application to the program. A committee composed of faculty members and representatives from both the graduate dean's office and the McNair Scholars Program selects participants and approves faculty mentors. Research internships are offered to those students who are juniors or seniors and are identified as having the greatest potential for pursuing doctoral studies.





## Tiffany Julian

### Moral Rhetoric in the Kansas Science Standards Controversy

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Tiffany Julian is a senior sociology major from the St. Louis area. She is an active member of the Missouri Students Association and MSA Board of Elections. Tiffany has received a number of scholarship awards including the Bright Flight, the Alan C. Greenberg and the Excellence award. This fall, Tiffany will be headed to the University of Indiana-Bloomington where she will receive full funding through a fellowship and departmental assistantship. There, she will enter a doctoral program in Sociology and work toward obtaining her goal of becoming a college professor.

## Introduction

Over the last 20 years there have been countless attempts in states all over the country to challenge the authority of evolutionary theory in science classrooms. Some want to remove it completely, others want creation science given equal time, or at the very least they want to change wording or display disclaimers to make evolutionary theory seem less like hard fact. In this paper I am interested in looking at one particular case of the evolution creationism debate. In the late 1990's Kansas became the hotbed of the evolution controversy. I wish to look at how that debate was structured on both sides. I'm interested in the argument strategies, symbolism used, and how similar or different the two sides were in their approach to the debate.

## History

Amy Binder's research provides excellent background on the events surrounding the school board's decision to deemphasize evolution. In 1998 a committee convened to draft the new science standards. The committee, made up mostly of professionals from the state's public schools and universities, drafted a document that relied heavily on national standards produced by the National Academy of Sciences, the National Science Teachers Association, and the American Association for the Advancement of Science. The proposed document actually used stronger language about evolution than the original Kansas standards, calling evolution a "unifying concept" rather than something students must "develop an understanding" of. The committee did add, however, a disclaimer suggesting that students need not believe everything they learn, but should understand the concepts (Binder:2002, 182).

When the draft reached the state school board, conservative members proclaimed that they would not pass the standards in this fashion and several members drafted revisions. Binder points out that journalists from the *Kansas City Star* were worried that one of the board's moderates might compromise with the conservatives in order to avoid a deadlock. There was talk of compromising language that would include the ideas of evolution under a softer name like "Patterns of Cumulative Change," but because the standards committee refused to remove evolution from what they endorsed, the conservative board members were forced to go ahead with a new version of the standards, completely rejecting the year of work of their own appointees to the standards committee. The new language of the board-written standards passed by a 6-4 majority, removing evolution from the requirements in the state assessment test (Binder: 2002, 183-196).

The school board was eventually defeated in the next year. The National Academy of Sciences and the other groups whose standards were a basis for the Kansas document refused copyright privileges to the school board. This severely delayed enactment of the new standards because everything had to be rewritten to avoid lawsuit. Meanwhile the *Kansas City Star* lobbied the public by keeping it informed of who the conservative extremists on the board were, and what type of decisions they were making. When the 2000 elections came up, school board elections received more contributions and spent more money than in any previous year. Three of the four conservatives up for re-election lost to moderate republicans or democrats. In February 2001 the board voted 7 to 3 to restore evolution without ever allowing the "compromise" standards to be put into effect (Binder: 2002, 194).

## Status Politics

Other researchers have approached school board issues such as evolution from the perspective of status politics. This view looks at groups in opposition as engaged in a battle for cultural control and power. As more secular and progressive ideas take control

of the schools, social conservatives feel the status of their ideas start to slip. One set of researchers in 1978 described conservative groups challenging the school board as “adherents of a lifestyle and worldview which are under threat from a variety of sources – the educational system, the mass media, the churches – fundamentally from every socialization agency beyond their immediate control which impinges on their lives” (Page & Clelland: 1978, 279). As children get older schools start to have a much bigger influence on their socialization than parents. If what the child learns at home and school is in conflict, the child must challenge the beliefs of their parents or risk punishment at school. As the ideas of social conservatives lose power, so does their influence over their children’s education.

When these issues are about morality and religion, parents have an obligation to defend the moral order. These issues are structured as “a ‘package of issues,’ among which anti-evolution is just one item” (Eckberg & Nesterenko: 1985, 2). Such issues as sex education, evolution, and profanity in books make up this “package” that is exceptionally important to the moral order. Public outcries about these issues “are attempts to build and sustain moral orders which provide basic meaning for human lives” (Page & Clelland: 1978, 279).

Gusfield shows how symbolism is important in status wars such as the one fought over temperance. Although the face-value battle was about alcohol, the underlying struggle was that of a middle-class with dwindling power opposed to the urban lower-class immigrants whose morals were beginning to challenge the traditional structure. The fight for middle class values like temperance was symbolic of the middle class’ fight to remain in power and esteem. Gusfield’s study of prohibition shows that even if these movements don’t work in practice, they can successfully reassert the status of the group by legitimating certain values and beliefs. In creationist cases, very few actually achieve their aim of removing evolution from schools, but many garner large public support and awareness for their cause. The moral order can still be maintained in this way.

Symbolic crusades like these are driven by symbolic arguments and events. Murray Edelman notes that “it is no accident... that most citizens have only a foggy knowledge of public affairs though an intensely felt one” (Edelman: 1964, 8-9). Issues are polarized and certain details magnified to draw heavily on emotion rather than sensibilities. This is especially true when morality is at issue. Political actors use symbols to attach emotional responses to broad ideas. Edelman categorizes symbols as either referential or condensation symbols (Edelman: 1964, 6). Referential symbols have shared meanings between many people, and are simply economical communication devices. Condensation symbols condense emotions, memories, abstractions, and promises into one symbolic event. These symbols are not always rational. Nonetheless, “practically every political act that is controversial or regarded as really important is bound to serve as part of a condensation symbol” (Edelman: 1964, 7).

Language shapes perception and behavior through symbols (Gusfield: 1963, 170). In political discussion familiar clichés and images are used over and over to minimize critical thinking and invoke a calculated response. Rather than encouraging active thinking and political analysis, politicians hope to do the thinking for their listeners by using pre-packaged symbols encompassing several internal connections and responses.

## Worldview

George Lakoff believes that political arguments are founded in fundamental differences in worldview. As a cognitive scientist, he studies the way symbols and conceptual models are formed. Human beings often think in metaphors. Much of our thinking is like the

referential symbolism Edelman describes. They are simply faster, more economical ways to handle experience.

Within the metaphorical schemes we use, it is interesting to make note of the categories of moral action present. These categories define what it is to be an ideal person who acts in a morally upright manner. For one group, the model citizen is a “wealthy, law-abiding conservative businessman who supports[s] a strong military...” (Lakoff: 2002, 169). That gentleman is a demon for the other group whose ideal is a citizen who lives a “socially responsible” life such as a doctor or lawyer for the poor or an educator that promotes social issues—the same people who are demons to the conservative ideal because they prevent self-reliance. Lakoff suggests that these moral ideals shape policy debates because they “are not matters of rational discussion on the basis of literal and objective categories... The debate is about the right form of morality” (Lakoff: 2002, 169). To compromise on an issue would be to compromise one’s morals.

When Conservatives and Liberals meet, they are looking at a situation from two very different directions. This is why it seems that many times they seem to talk straight past each other, rather than answer the other’s complaints. They are mostly unaware that others see things on different terms. Discourse gets away from the issues and turns to attacks on the other’s way of life or belief system in general. Here is where symbolic arguments come in. Each side attacks one smaller aspect of the others’ philosophy and then symbolically relates that aspect to many other evils. In the cases like temperance, the symbolic debate is about the moral decline of the country. Likewise, the evolution and creation debate can be seen in symbolic terms. When looking at such debates, it is useful to look at all of the implications of the issue, from both worldviews. This is the only way to get at the root of the debate.

## Role of the Media

Taylor and Condit studied a similar school board case over evolution and creationism in schools in 1988. They found that the media inadvertently played a huge role in the Arkansas debates at that time. The claims made in the 1988 case are echoed in the case I am studying here, so their findings about the role of journalists are particularly important. There are two main issues Taylor and Condit make about the role of journalists. One is to observe the two sides’ usage of the “public idiom.” Another is to comment on the journalistic maxim of “fair and equal” coverage and how it indirectly legitimated the creationist claims.

The public idiom is the popular conception of reality rather than the actual facts. Creationists appealed to the media using ideas like fair treatment, equal time, and weak definitions of theory. Taylor and Condit suggest, “The journalistic mediation of discussions of the nature and functions of scientific theories indirectly legitimated the creationists’ populist account... the press indirectly established a ‘standard of proof’ which ignored the power, breadth, and amount of scientific evidence for a theory” (Taylor & Condit: 1988, 301). I’ll go into this more in my own findings, but it is important to note that this sort of journalistic mediation is responsible for how the public views the debate. The impact of journalists on the issue was best summed up by John Goldstein when he wrote that “what the non-scientists in the United States, including policymakers in Washington, know about science is what they read in the newspapers” (Taylor & Condit: 1988, 296).

## Methods

I began the process by doing an exhaustive search of the Lexis-Nexis and Factiva databases of major news sources for the years of 1999 and 2000. I searched using the terms “evolution,” “Kansas,” and “Science Standards.” I came up with about 50 articles that included opinion pieces, letters to the editor, and stories from many

of the nation's major print news sources. Sources include national, regional, local, and university papers. I read through each article first, and then pulled out individual quotes from each that were notable in terms of arguments for or against the decision, attacks on the other side of the issue, and allusions to seemingly unrelated issues.

Each piece of data was sorted and resorted, in various manners, until common themes and patterns of rhetoric started to appear. Using the findings of researchers before me, I set out to analyze the data in terms of metaphor, symbolism, and status. In the end, I came up with categories that represented the four different approaches taken in arguing for or against the decision that will be analyzed over the course of this paper.

## Findings

In the many ways the arguments can be separated, one of the most basic is that the first arguments appeal to reason while the later arguments appeal to emotion. While there are some symbolic elements in the first arguments, especially in terms of diversity and politics, the arguments are generally straightforward. In the later arguments, there is a small element of reasoning, but it is largely based on a strong emotional response to the moral order and the future of our children and our country.

The first creationist issue is about local control. They interpret the board's decision as an opportunity for people to decide what works best for them. Just as one can choose his or her own religion, schools can choose what to teach. Evolution could still be taught, and creation would not be required. The decision would simply be up to the people. Some examples of this kind of argument are:

*The board's intent was not to force creationism or any other theory on the origins of life into science classrooms, but to allow school districts to decide for themselves. (The Augusta Chronicle 29 Aug. 1999)*

*Contrary to some nationally published accounts, the board did not decide to ban the teaching of evolution from Kansas classrooms. It simply freed local school districts to develop their own standards of assessment and choose their own curricula. (Omaha World Herald 22 Aug. 1999)*

This argument seems to appeal to a popular argument about small government and local control. There should be smaller federal government and less outsider intrusion into our lives. Essentially, this argument says, the debate is not over how the world was created, or what version of the truth our children should be taught. The debate is over whether local communities or the state or the federal government gets to decide what happens at school. Evolution will probably still be taught, these people say, but each community will have more control over their children's lives.

This argument seems to be an attempt at redirecting focus. The creationists making this argument feel that they can't win by saying evolution is bad, but they feel they can win the argument that they should have control over their own lives. This argument is symbolic because it does not change the curriculum but still shows how people are being wronged. It is a strategic attempt to win over moderates and attach the issue to the conservative agenda.

If the creationists were to win they could be very successful because presumably a creation-friendly curriculum would go over better in the local realms where scientists have less sway than politicians and church leaders. By taking any mention of evolution or creationism out of the standards, districts that choose to teach to one extreme or another would no longer have to answer to anyone but local voters in elections that generally have low turnout anyway.

Amy Binder's research shows how stealth campaigning in local elections can be very effective in getting conservative agendas passed under the radar. In a country that prides itself on democracy, this argument seems to be in line with a popular ideal of letting the people decide. It is also a dangerous argument for the evolutionists to counter because it allows the creationists to change the focus from *what* should be taught to *who* should decide.

Evolutionists, in response, are not willing to let go of the science standards or evolution, but they are willing to allow creationism to be taught in a designated place. That is, it's okay for kids to learn about alternate theories in philosophy, language arts, or religion, but not in science class. They point out that both theories could be held at the same time and still remain coherent.

*What is unfortunate is that those who strive to remove the teaching of evolution from school textbooks seem to believe that science necessarily precludes religion. It doesn't. (South Bend Tribune 19 Aug. 1999)*

One of the first things that many moderates will point out is that the debate seems silly because creationists are missing the point all together. They believe that religion and science can be understood together. They point out that the underlying assumption the creationists are using is that science beliefs are incompatible with religious beliefs. These comments imply that the creationists have the wrong understanding of God and the nature of the world. In this way they attack both the creationist tactics of changing the curriculum and their basic way of viewing the world.

*Science is one way of knowing the world, but there are lots of others...But when you're dealing with the science way of knowing the world, you've got to play by science's rules. (The Columbus Dispatch 12 Sept. 1999)*

*Evolution was never intended to get rid of religion. When we teach we expect the students to learn evolution, they don't have to believe in it. (The Collegio (Pittsburg State U.) 27 Aug. 1999.)*

Many people argued that science and religion, rather than being explanations of each other, are simply different ways of understanding the same thing, each with their own limitations. Within the realm of theology classes certain things are acceptable and within the realm of science classes other things are acceptable. Neither is intended to get rid of the other, and no one is required to believe either.

The next type of argument is the actual scientific debate about the truth of evolution and creationist claims. Arguments are about what the standard of proof is for a theory to be taught, what the word "theory" means, and flaws in the other theory. The reporting of these arguments is especially important to this category because the media facilitate the scientific debate using political standards rather than scientific standards. As my literature review shows, creationists used the press to create the popular conception that evolution can't be tested to an appropriate degree of accuracy and therefore shouldn't be given much weight (Taylor & Condit: 1988, 301). Creationists present their argument like this:

*No one was present when life first appeared on earth. Therefore, any statement about life's origins should be considered as theory, not fact. (The Patriot Ledger (Quincy, MA) 25 Aug. 1999)*

Creationists here are arguing that evolution is just a theory and not fact. They contend that no one can test whether or not macroevolution works. Since no one has ever seen it happen, it



holds as much weight as other un-testable theories. This tactic equates the word “theory” to a hypothesis or guess. It also suggests that what is taught in school should be unquestionably fact or should have a disclaimer saying that scientists disagree, even if there are very few scientists who disagree. One reporter noted that “...creationists appear to be increasingly active, adopting a new strategy to get around the constitutional issues. Instead of trying to push creationism onto the curriculum, many creationists are trying to keep Darwin out of the classroom or insure that if evolution is taught, it is presented as merely one unproved theory” (*The New York Times* 12 Aug. 1999).

The arguments in this category do whatever they can to bring evolution and creationism to the same level. Some even equate science to its own religion saying, “Many creationists believe it takes as much faith to believe in evolution, making it something of a religion” (*Omaha World Herald* 22 Aug. 1999). After weakening the stance of evolution to an improvable theory that requires as much faith as creation, they try to bring creationism up to the scientific standard by reasoning from current scientific evidence how evolution is in fact incorrect.

*Evolution is a theory that defies observed scientific and statistical principles to arrive at its conclusions...Observed mutations are almost always negative, and statistically, could never support evolutionary theories.*(*Sarasota Herald-Tribune* 27 Aug. 1999)

By providing evidence from microevolution that has been observed, this argument sets up its two premises: 1) good science must be observable fact, and 2) creationism has more good scientific proof than evolution. Therefore, at the least, both theories should receive equal treatment.

Evolutionists were better able to attack the misuse of the word “theory” during this debate than they were in the Arkansas debate ten years earlier. They counter that creationists misunderstand the word theory and the standard of proof that is very rigorous in science. They say that “what creationists are doing is twisting the definition of the word ‘theory.’ In the popular mind, if something is only a theory then it’s somehow less true. In scientific terms theory does not mean ‘guess’ or ‘hunch’ as it does in everyday usage...”(*Reuters* 11 Aug. 1999). These scientists and those who subscribe to their way of thinking feel that attacks on evolution are the result of misunderstanding the findings of good science and its terminology.

*They stress that the word “theory” in science means something overwhelmingly supported by evidence, not an untested hypothesis. Gravity, they note, is a “theory,” too.* (*The Patriot Ledger* (Quincy, MA) 25 Aug. 1999)

Many times there seems to be a flippant tone to imply that by such reasoning creationists would need to throw out everything in science that cannot be proven visibly in the laboratory but is accepted as true. Comments about gravity and similarly accepted “theories” are thrown in because they seem to work out well and yet have the same amount of “proof” that creationists are so quick to attack in other areas. The point here is that evolutionists in this group attack the creationists understanding of key words, their epistemological beliefs, and their logic.

*Creationism doesn’t demand any more evidence than what appears in the Bible, whereas evolution, any theory of evolution, has to stand scientific scrutiny.* (*Sunday Gazette-Mail* 5 Sept. 1999)

*Although opponents dismiss evolution merely as an unproven theory, scientists know better.* (*South Bend Tribune* 19 Aug. 1999)

Many arguers in this group take the opportunity to degrade creationist theory while defending their own position. They claim that evolution more than adequately meets scientific standards and creation science is guilty of its own charges. The Bible is really what cannot be tested. They basically make an attempt to throw creationism out on grounds that it lacks evidence, and they fail to make any note of the *scientific* evidence the creationists attempt to present.

Arguments that appeal to the emotion rather than reason are much more memorable to the public. By turning the focus toward more emotional aspects of the debate, both sides make poorly reasoned arguments that are nonetheless effective. This is a debate about schools, so inevitably children are a focal point of the debate. Both sides claim that children, who are the future of the country, are at risk if the other side is successful. They use children as condensation symbols to draw an emotional response in the reader. Those people who do not feel strongly about which theory is right, still care about their kids getting a good education and getting into the right college, or even stronger, not getting shot by gunmen at school.

Because creationists are the minority view, they claim that their voice is unfairly being silenced. They appeal to fairness once again and say that children are being deprived of the truth. In the very least they consider it an exercise in critical thinking to present children with both sets of evidence and let them reason through the arguments themselves. They also claim that the political power of liberal politicians is keeping the truth from children.

*“We have had enough of the liberal Democrat and moderate Republican on decision making of higher education. Evolution is not eliminated from the curriculum, just not emphasized. We cannot continue to **dumb down** our students.”* (*Topeka Capital-Journal* 2 Nov. 2000)

*“This is a political subversion of a valid educational debate; it is a **betrayal** of our students’ expectations to deprive them of this opportunity to learn.”* (*Associated Press* 26 Sept. 1999)

In arguments like this, partisan politics and liberal demons are blamed for hurting children. Creationists can lump the readers’ emotional response to children and politics together to make the argument that much more powerful. Certain words in the arguments are carefully chosen to create a response in the reader as well. Not only are we not educating our kids, we are actually dumbing them down. We have betrayed students by promising them the opportunity to learn, then depriving them of access to all the information that is available. The idea of depriving children is something that has potential to resonate with parents of all beliefs.

The evolutionists use similarly strong language to accuse creationists of hurting children. They use words like “backwards,” “losers,” “darkness,” and “hurt chances” to assault the intelligence of those who do not believe in evolution and claim that the children will similarly be harmed. They comment that, “the **losers** will be the Kansas children left in the same kind of **darkness** that enveloped scientific thought after Galileo was persecuted for announcing his discovery that the Earth moved around the sun, and not the other way around” (*South Bend Tribune* 19 Aug. 1999). Loser refers to children losing opportunities but loser also has an insulting connotation attached to it. This is a personal stab at the state of Kansas for holding medieval beliefs.



*...because evolution is such a unifying principle of biology the new standards could mean students would be **unprepared** for college admission tests and college science courses. (The New York Times 12 Aug. 1999)*

*The state board's decision **hurts the chances** that Kansas children will **succeed** in science. (Associated Press 12 July 2000)*

According to evolutionists, Kansas children will also suffer because they will not do well on college admissions tests or do well in college course work once they get there. The children cannot have a future in the sciences because they will be handicapped by their education.

Finally, the effect all of this has on people who do not have children in state schools is that the economy will suffer. One company owner considering moving his company emailed the Topeka Capital-Journal saying, "a key issue for his company is whether it can find **well-educated workers**. He said because of the decision, 'that is in doubt,' in Kansas" (The Associated Press 13 Aug. 1999). Others have made similar claims that businesses won't come to Kansas because the school districts will have such low ratings, and they would not be able to recruit employees.

The final type of argument is the most extreme because not only does it reject the viewpoint of the other side, it attacks them as a group. For the creationists this is where the symbolic crusade can be seen most clearly. The issue is presented as a war against moral decline in America. For evolutionists this is mostly an opportunity to make fun of the Christian Right. Lakoff's conservative and liberal worldviews are very important to understanding why these arguments are so prominent.

Conservatives see the ideal world as one in which everyone is morally upright. The liberals are demons because they allow laziness and moral irresponsibility. Creationists see a lack of morality in society and blame it on the schools as a primary socialization institution. They feel that liberals are always fighting to keep God and morality out of the schools.

*The schools are where we have to start, by keeping them informed on the traditional and moral values to keep a strong nation. (Topeka Capital-Journal 2 Nov. 2000)*

*Academic education has been replaced with indoctrination programs. The process is designed to change the attitude, values and beliefs of the children away from traditional American values of God and country, away from the family, away from competition. (Topeka Capital-Journal 2 Nov. 2000)*

This is the first basic argument. The schools, as socializing agents, are the foundation of our society. It is imperative that we teach strong moral values as children grow up to ensure that we always stay a strong nation. Liberals are constantly thwarting this effort. They are "indoctrinating" our children with wrong values and beliefs. Evolution is just one of the ways that this happens—schools no longer allow prayer or the Ten Commandments in classrooms. The battle over evolution is a part of the larger package of issues conservatives are fighting for in the schools to reassert morality in the classroom.

Why was morality so important at that time? The Columbine shootings were just a few months before the controversy and that entire summer the country was asking the question "How could this happen?" Lakoff uses the term salient exemplar, a single memorable example that is not necessarily the norm but is nonetheless used to draw conclusions, to describe a symbolic event

like Columbine (Lakoff: 2002, 9). For the creationists, the violence is a daily reminder of the immorality of the world.

*At the heart of each of these debates is the persistent perception that public schools are out of control, that students **lack clear moral standards** and that the proof of both has been **written in blood** during a spate of shootings in the last 23 months. (Sunday Gazette-Mail 5 Sept. 1999)*

*Students in public schools are being taught that evolution is a fact, that they're just products of survival of the fittest ... It creates a sense of purposelessness and hopelessness, which I think **leads to things like pain, murder, and suicide** (The New York Times 12 Aug. 1999).*

These are serious claims because creationists are blaming science and science teachers for the current disorder of the world. They perceive their fight to include creation in the classroom as a battle to end "pain, murder, and suicide." This is a very important and very personal issue for creationists. Many people wonder how evolution leads to this hopelessness that ends in violence. Creationists explain that evolutionary theory diminishes human dignity by making us like animals with no clear purpose in life. They believe evolutionary theory implies that we should be hedonistic, like animals, and that we are not created by God to be like God.

*If you essentially tell children that they are evolved from monkeys, then you shouldn't be surprised when they act like monkeys (The Patriot Ledger (Quincy, MA) 25 Aug. 1999)*

*"It comes down basically to the fact that morality and sanctity of life come from a belief in God." Take those away, he argues, "and through the teaching of evolution man is just considered to be a higher animal form, then the consequence of that is a disregard for life and a disrespect for life." (The Ottawa Citizen 29 Oct. 2000)*

Our actions result from what we believe about the world and ourselves. If we are just animals then we are expected to act like animals, if we are in God's image then we are expected to act God-like. When kids like those at Columbine go on a shooting spree, or a person commits suicide, creationists believe it is because the school system indoctrinated them to believe that there is no God, no moral order, and no purpose in life.

Evolutionists simply laugh at these claims. They do not see science as having anything to do with morality at all. They are in completely separate realms of thought. As a consequence they make fun of creationists because they do not seem to make any sense. They just seem "crazy." All over the country Kansas was the butt of thousands of jokes about monkeys and a flat earth.

*That one made me feel really thankful that I live in Florida, where such anti-science **nuttinness** hasn't gained much ground. (Sarasota Herald-Tribune 24 Aug. 1999)*

*In the beginning, Mark Twain once said, God created **idiots** for practice; then he moved on to school boards. Twain must have had in mind just such a body as the Kansas Board of Education... It's a big victory for creationists, a group that is **scientifically perverse** but in this case, politically powerful. (The Gazette (Montreal, Quebec) 18 Aug. 1999)*

Evolutionists make note of the political power of such a minority opinion. They attempt to diminish the influence of the creationists

political power by calling them “perverse,” “idiots,” and calling their view “nuttiness.” By laughing at the other group, the evolutionists are attempting to maintain their status position in the debate. They are making open attempts to reduce the amount of credibility the creationist cause is able to garner. They have much to lose if the conservatives’ absurd morality is imposed on their children. They are fighting a crusade to maintain the moral order, which includes progress.

*Most of the civilized world does not have these kinds of evolution-creation debates, because they’re civilized. (The Ottawa Citizen 29 Oct. 2000)*

*Graves said the decision was “so out of sync with reality” that it minimized the board’s credibility. (Dayton Daily News 14 Aug. 1999)*

Likewise, statements like this make a further attempt to diminish the credibility of their opponents, saying they are out of sync with reality and uncivilized. This is as much a debate about epistemology as anything else. In an enlightened society, evolutionists look to scientific or rational truth about the world. Compromising to allow creation science in the classroom would lower the status position of the evolutionists. Their way of knowing the world and their authority would be diminished by saying that they might not be right. Teaching bad science for the evolutionist is analogous to teaching weak morals for the creationist.

### Summary of Strategies and Conclusion

There were several strategies used in the debate to appeal to different aspects of peoples’ worldviews. One is to appeal to traditional concepts of American rights and freedoms using ideas like local control, diversity of ideas, equality, and fairness. These were picked up by the media and used to benefit the creationist side, especially. Another strategy consisted of twisting the meaning of common words like theory and evidence. The science community was not as effective as they could have been in explaining to the public what is necessary to classify something a theory, and how evidence does support evolution. Creationists used this tactic to their advantage by using journalists to advertise a false standard of proof and definition of theory.

The metaphor of war was used to represent a fight over culture and values. References to the battle for control or schools as battlefields support this metaphor. The symbolism represents the intense emotional involvement on both sides, but especially the creationist side who is fighting a war against evil. Using Columbine as a particularly strong representation of the battle became a popular theme, but Hitler, Stalin, and communism came up as well. For both sides, the children are the victims of this war. The other side needs to be stopped to protect something both valuable and innocent. Finally, the last strategy was to attack the other side as a group. Liberal vs. Conservative. Republican vs. Democrat. Those with power vs. the marginalized. Good vs. Evil. Crazy vs. Enlightened. The battle was intensified by creating a moral crusade to defend one’s worldview.

Both sides used similar strategies, with different motivations and effectiveness. Both sides used children as condensation symbols to capture the whole struggle into a single important issue. Arguments on both sides were often symbolic and strategic, not arguing correctness of the theory so much as pushing an entire worldview and social order. Finally, this is a debate that is more about culture and political control rather than the truth-value of a scientific claim. It is important to understand this fact to understand why every few years the debate pops up in one state or another. Understanding the worldview of each side can help us see through the arguments to the

real issues that matter. As long as the two sides continue to talk past each other without debating the real issue of the proper moral order, compromise and understanding is unlikely to happen.

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## Tamar Wallace

### Children's Representations of Parent-Child Alliances in Family Drawings

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## Introduction

Parent-child relationships are defined by emotional and psychological limits referred to as boundaries. Maladaptive boundary dissolution occurs when the child is expected to provide emotional support and security for the parent, at the expense of the child's needs for nurturance and support (Jacobvitz, Riggs, and Johnson, 1999). Though researchers have begun to investigate the consequences of boundary dissolution for children's behavioral outcomes (e.g., Jacobvitz et al., 1999), little is known about children's representations of boundary dissolution. It is important to understand children's representations because they provide a window into children's internal working models, or expectations about relationships. Attachment theory suggests that internal working models influence the quality of social relationships (Bowlby, 1969).

The primary purpose of this study was to investigate relationships between children's representations of boundary dissolution and their social and emotional adjustment. Boundary dissolution may take a variety of forms, including role-reversal, triangulation, spousification and alliances. This study focused specifically on parent-child alliances, which can be defined as relationships between parent and child that cross generational boundaries and are often stronger than both the marital relationship and the child's relationship with the other parent (Jacobvitz, et al., 1999). Few studies have examined parent-child alliances and even fewer have investigated young children's perceptions of this problematic family pattern. This study examined children's representations of parent-child alliances in two ways. First, a new scale for coding representations of parent-child alliances in children's family drawings was developed. Scales used in previous research assess role reversal in the mother-child relationship (Fury, Carlson, Sroufe, 1997), but children's perceptions and representations of family-level patterns such as alliances have yet to be evaluated. Second, this study examined the structural features of children's drawings (i.e., exclusion of figures and the sequence in which figures were drawn) as indicators of parent-child alliances.

Patterns of alliances are a function of the quality of marital relationships. Alliances are more commonly found in family environments including marital problems (Jacobvitz, et al., 1999). When conflict or emotional distance are present in the marriage, one parent may turn to the child for support. This, in turn, overburdens the child, creates greater distance in the marriage, and disrupts the child's relationship with the other parent.

Children who experience boundary dissolution are at higher risk for experiencing numerous problems including internalizing symptoms such as depression, low self-esteem, stress and anxiety (Jurkovic, 1997). For example, Jurkovic (1997) reported that children who experience role-reversal are more at risk for experiencing stress, guilt and shame. Some parentified children experienced depression so severe that they reported considering suicide. In a study on family alliances, Jacobvitz, et al. (1999) found that children who reported forming an alliance with one of their arguing parents also reported higher levels of anxiety and depression. In addition, researchers have found links between boundary dissolution and problems in self-development, such as lower self-esteem. Providing emotional support to a parent may make a child feel important, but when the parent ignores the needs of the child in the process, the child is likely to feel unworthy of love, consequently lowering the child's feeling of self-worth (Jacobvitz, et al., 1999). Hetherington (1999) agrees, suggesting that the high demands of parentification may lead children to feel doubts about personal adequacy, a heightened sense of failure, and low self-worth. Clinical work suggests



that there may also be a link between parent-child boundary dissolution and peer relationship problems, a topic that has received little attention from researchers. According to Jurkovic (1997), children who experience boundary dissolution may lack the social skills necessary to form meaningful friendships with peers. A heightened level of responsibility and maturity separates these children from relatively immature same-age peers who may view them as being too serious. Peers may seek out these children for advice or attention when they are lonely, but usually fail to form genuine, lasting friendships. Children who have experienced similar asymmetric relationships at home may accept the unfair gestures, or may alternatively try to control their peers, further alienating themselves as a result (Jurkovic, 1997).

Because it is often difficult for children, especially at a young age, to express their emotions and feelings verbally, we utilized family drawings in this study to evaluate children's representations of alliances (Fury, et al., 1997). Drawings can be especially effective in looking at children's personal, subjective and even unconscious representations of family relationships. Researchers have conducted several studies both measuring the validity and reliability of drawings as measures of children's perceptions and representations of family relationships. For example, working under the assumption that drawings can express the inner thoughts and representations of children, Pianta, et al. (1997) designed a study involving Kindergarten children whose attachment histories had been previously measured to examine the reliability and validity of child drawings as a measure of children's attachment styles. Socioeconomic status (SES), gender, and age were taken into account. By considering the family drawing of each child as well as teacher reports of competence and problem behaviors, researchers were able to successfully judge the attachment styles a significant percentage of the time. These findings were replicated in a study conducted by Madigan, Ladd, and Goldberg (2003).

Structural features of drawings, such as the order of figures drawn and the exclusion of figures have received little attention from researchers. Of those who have studied structural features there is debate as to their importance and accuracy in evaluating children's perceptions. A study on the differences in family drawings between divorced and non-divorced families suggests that the order in which figures are drawn and the exclusion of figures may have significant meaning. For example, most of the children began their drawing with a figure of the same sex as themselves (67% of girls and 74% of boys) and most boys placed themselves at the center of their drawing. These findings may indicate that drawing order is relevant to children's perceptions of their actual or desired position in the family. Results from the same study also indicate that children from divorced families are significantly more likely to omit one or more family members, (Spigelman, Spigelman, & Englessen, 1992). The omission of a parental figure, in particular, may indicate the existence of a parent-child alliance between the target child and the parent included in the drawing. Alternatively, omission may suggest conflict in the relationship between the child and the excluded parent (Spigelman, et al., 1992). Conversely, art therapist Cathy Malchiodi places little value on specific drawing features such as the drawing order or omission of figures. Malchiodi recognizes that children's family drawings may enhance therapists' understanding of how children perceive themselves in relation to people who are significant in their lives, the family system, and hierarchies and boundaries within their families, but warns that it is too difficult to say with certainty what each specific

marker may mean for the individual child (Malchiodi, 1998). The present study hopes to further explore the relevance of structural features in evaluating family drawings for parent-child alliances.

In summary, previous research has demonstrated that children who experience boundary dissolution are more likely to experience depression, lower self-esteem, stress and anxiety. Further, clinical work suggests that parent-child boundary dissolution may have a negative effect on peer relationships. The primary goal of this study was to investigate children's pictorial representations of boundary dissolution in relation to their social and emotional functioning. I hypothesized that representations of parent-child alliances in children's family drawings would be associated with higher levels of internalizing symptoms and lower levels of self-esteem. As an exploratory question, I examined whether parent-child alliances specifically, or boundary dissolution more generally would be related to more negative outcomes for children. A second exploratory question concerned relationships between children's representations of parent-child alliances and the quality of their peer relationships. Parent-child alliances were examined in two ways. First, a new scale was developed to code children's family drawings for parent-child alliances. An additional scale for coding boundary dissolution more generally was also developed. Second, structural features were examined.

## Methods

### Participants

The data reported in this study were obtained from 48 children (ages 4.25 -8.5 years), and their teachers, who were part of a larger study involving 64 families and teachers. Of the original 64 families, 48 had complete data at the time this study was conducted. Two children declined to participate in the family drawing, three of the family drawings were uncodable because they did not include any family members, and one drawing was excluded because both parents were omitted. At the conclusion of this study, teacher data had not been collected from ten teachers. Families were recruited from childcare centers in the community. Eighty-five percent of the mothers were Anglo-American; 2% were of Middle-Eastern background, 6% were of Asian background, 2% were Hispanic, and 4% were of other backgrounds. The average age of the mothers was 37.36 years (SD 5.63); the average age of children was 5.87 years (SD 1.10). Most of the mothers had completed a college or postgraduate professional degree (83%) and all mothers had completed at least high school or the equivalency test. Of the participants who reported their income (N=42), 83.3% of families had a joint income of over \$45,000.

### Procedure

Families participated in the study at the University of Missouri-Columbia. Parents completed a questionnaire packet while the children were interviewed in a separate room. As part of this interview, the children completed family drawings and Harter's Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PPCSA; Harter & Pike, 1984). Children's fine motor skills were assessed using the McCarthy Screening Test (MST; McCarthy, 1978). Cognitive ability was assessed using the Expressive Vocabulary subtest of the Kaufman Brief Intelligence Test (K-BIT; Kaufman & Kaufman, 1990). Both the MST and the K-BIT are standardized assessments with well-documented reliability and validity (McCarthy, 1978; Kaufman & Kaufman, 1990).

The children's teachers were contacted and asked to complete the Child Behavior Checklist (CBCL; Achenbach & Edelbrock,

1991), the Teacher-Child Rating Scale (T-CRS; Hightower, Work, Cowen, Lotyczewski, Spinell, Guare, & Rohrbeck, 1986), and the Child Behavior Scale (CBS; Ladd, & Profilet, 1996).

## Child Measures

**Children's Representations of Alliances and Boundary Dissolution.** Children's representations of boundary dissolution were assessed with a family drawing task (Fury et al., 1997). Children were given a blank piece of paper and asked simply to draw a picture of their family. The 8 1/2x 11" piece of white paper was placed horizontally in front of them, along with ten colored markers (Crayola® 10ct. Washable Super Tips, Fine Line) which were presented in a standard order.

Two scales were developed as part of the study, one to assess the specific pattern of alliances between parent and child and a second to assess general boundary dissolution. The Parent-Child Alliances (PCA) scale assesses the extent to which parent-child alliances exist, as reflected by differentiation of figures (e.g., aligned parent and child have similar appearance and excluded parent is different), or separation between figures (e.g., significant space between aligned parent and child compared to the other parent, perhaps including an object as a barrier or the use of body parts to separate figures). The Boundary Dissolution (BD) scale assesses the extent to which boundary dissolution exists, as reflected by encapsulation or omission of one or more figures, or spacing or differentiation of figures resulting in the exclusion of one or more family members, not necessarily resulting in a pairing of figures. The BD scale differs from the PCA scale in that it is more general and includes several types of boundary dissolution, whereas the PCA scale is focused on the specific pattern of parent-child alliances. Both scales are 7-point scales in which 1 is the low end and 7 is the high end. In order to establish the validity of the new scales, all drawings were also rated on the family drawing scales developed by Fury et al., (1997). Vitality and Creativity, Family Pride and Happiness, Emotional Distance and Isolation, Tension and Anger, Role Reversal, Vulnerability, Bizarreness and Dissociation, and Global Pathology.

The author of this paper rated all drawings on the PCA and BD scales. In addition, a subset of 25% of the drawings were independently rated by a second coder to establish interrater reliability. The ICC was .97 for PCA and .89 for BD.

**Children's Self Concept.** The PSPCSA (Harter & Pike 1984) was used to measure self-concept. This instrument, which is designed for children in preschool through second grade, assesses four categories of perceived competence: cognitive competence (e.g., good at adding, knows names of colors), physical competence (e.g., good at swinging or running), peer acceptance (e.g., eats dinner at friend's house, has lots of friends) and maternal acceptance (e.g., Mom cooks favorite foods, mom reads to you). Children are shown two pictures, side-by-side, while a brief sentence is read. The child would hear, for example, "This girl is very good at puzzles, and this girl isn't as good at puzzles," and would then be asked which one she is most like. The child is then asked whether she is very much like the selected girl, or just a little. Each item is scored on a 4-point scale, with 1 being the least competent and 4 being the most competent. Cronbach's alpha for these measures were: Cognitive Competence= .66, Peer Acceptance= .67, Physical Competence= .46, and Maternal Acceptance= .68.

**Structural Drawing Features.** In addition to the rating scales, the structural features of the drawings were examined in relationship to child outcomes. These structural features included the exclusion of figures and the order in which figures were drawn. For the exclusion variable, the drawings were

recorded in one of two categories, either as having all members present or missing one or more members. Two order variables were created; the first indicated which person was drawn first, mom, dad, self (the target child) or a sibling. The second order variable looked at drawing patterns, for example were both parents drawn first, or were the parents drawn on either side of the child? The possible sequences were as follows, where P=parent, C=child, and O=others:

PP-C(C)      C(C)-PP      CP-O      PC-O

## Teacher Ratings

**Peer Relationships.** Peer relationships were evaluated using subscales from the T-CRS (Hightower, et al., 1986) and the CBS (Ladd & Profilet, 1996). Teachers completed the Assertive Social Skills subscale of the T-CRS. This subscale includes 5 items measuring social status in interpersonal functioning and confidence in dealing with peers, e.g., "Defends own views under group pressure," "Comfortable as a leader," "Participates in class discussion"). Each item is rated on a 5-point scale based on how well it describes the child. Cronbach's alpha for this measure was .984. In addition, teachers completed two subscales from the CBS, assessing prosocial behavior (e.g., "offers help", "recognizes feelings") and exclusion by peers (e.g., "ignored by peers", "peers refuse to let child play"). Items on the CBS were rated on a 3-point scale (1= doesn't apply; 3= certainly applies). Cronbach's alphas for these scales were .89 and .81, respectively.

**Internalizing Symptoms.** Children's internalizing symptoms were evaluated using the Teacher Report Form of the CBCL (Achenbach & Edelbrock, 1991). The CBCL is a standard instrument, which has been shown to have good test-retest reliability, discriminant validity, and criterion-related validity (Madigan, et al., 2003).

## Results

### Preliminary Analyses and Descriptive Statistics

First I conducted preliminary analysis to identify potential confounding variables. There was no relationship between child outcomes and gender, intelligence, or age. However, exclusion by peers was related to joint income. Specifically, lower incomes were associated with greater exclusion by peers,  $r = -.404$ ,  $p < .01$ . In addition, gender was related to prosocial behavior. Specifically, females were rated higher in prosocial behavior ( $t = -3.167$ ,  $p < .05$ ,  $F = 5.490$ ). Descriptive statistics for all variables are presented in Tables 1 and 2.

**Table 1. Descriptive statistics—Continuous variables**

Variable	N	Mean	SD	Min.	Max.
Family Drawing Scales					
Parent-Child Alliances	48	4.08	1.88	1	7
Boundary Dissolution	48	4.33	1.92	1	7
Self-Concept					
Cognitive Competence	47	3.55	.44	2.33	4
Physical Competence	47	3.37	.48	1.50	4
Peer Acceptance	47	3.01	.55	1.33	4
Maternal Acceptance	47	3.03	.59	1.50	4
Child Symptoms					
Internalizing	48	4.04	4.03	.00	15
Peer Relationships					
Prosocial	48	2.55	.44	1.14	3
Exclusion	48	2.48	6.34	.00	23
Assertiveness	48	1.12	.23	1	1.83

**Table 2. Descriptive Statistics—Categorical Variables**

Variable	Frequency
Exclusion	
All family members included	38 (80.9%)
Family member excluded	9 (19.1%)
Parent vs. Child Drawn First	
Parent First	30 (63.9%)
Child First	17 (36.1%)
Sequence of Figures	
Parent-Child-Others	8 (17.0%)
Other Sequences	39 (83.0%)

**Validity of New Family Drawing Scales**

First, I examined relationships between the new family drawing scales and child characteristics. Boundary Dissolution (BD) ratings were related to age,  $r = -.332$ ,  $p < .05$  and fine motor skills,  $r = -.332$ ,  $p < .01$ . Drawings completed by older children with better fine motor skills were rated lower in boundary dissolution. PCA ratings were only related to fine motor skills,  $r = -.327$ ,  $p < .05$ . Drawings by children with better fine motor skills were rated lower in alliances. These results were not surprising because previous studies have also found a relationship between fine motor skills and the other drawing scales (Pianta, et al., 1999), while intelligence was not related to any of them (Fury, et al., 1997; Pianta, et al., 1999).

Next, in order to examine the validity of the new scales, I examined relationships between the new scales and the original family drawing scales (Fury et al., 1997). The BD and PCA scales developed for this study were related to previous scales in the expected directions. For example, PCA and BD scales were negatively related to Family Pride and Happiness ( $r = -.375$ ,  $p < .05$ ;  $r = -.559$ ,  $p < .01$  respectively) and positively related to Vulnerability ( $r = .349$ ,  $p < .05$ ;  $r = .501$ ,  $p < .01$  respectively). The moderate correlations show that there is discriminant validity, that is, the measures are related but the new scales measure unique constructs.

**Table 3. Correlations between new family drawing scales and existing family drawing scales**

	PCA	BD
<b>New Drawing Scales</b>		
Parent-Child Alliances	1	
Boundary Dissolution	.71**	1
<b>Fury et al. (1997) Scales</b>		
Vitality/Creativity	.12	.20
Family Pride, Happiness	-.38*	-.56**
Emotional Distance/Isolation	.22	.48**
Tension/Anger	.30	.41**
<b>Role Reversal</b>		
Vulnerability	.35*	.50**
Bizarreness, Dissociation	.33*	.60**
Global Pathology	.36*	.56**
<b>Child Characteristics</b>		
Age	-.14	-.33*
Fine motor skills	-.33*	-.38**
Intelligence	-.12	-.03

N = 41-48  
\*\* $p < .01$  \* $p < .05$

**Relationship Between Parent-Child Alliances and Child Outcomes**

The main goal of this study was to examine the relationship between children's perceptions of parent-child alliances and children's socio-emotional outcomes. This was examined in two ways. First, I analyzed relationships between the new family drawing scales and children's socio-emotional outcomes. Second, I analyzed relationships between structural features of drawings (i.e., exclusion of figures, order of figures drawn) and children's socio-emotional outcomes.

**Family Drawing Scales and Child Outcomes.** I first tested the hypothesis that children's representations of Parent-Child Alliances (PCA) would be related to higher levels of internalizing. This hypothesis was not supported, as can be seen in Table 4. Next it was predicted that children's representations would be related to more negative self-concept. Specifically, children who depicted PCA were expected to rate themselves lower on physical and cognitive competence as well as peer and maternal acceptance. Also shown in Table 4, the results indicate that this is not the case. However, BD was associated with lower peer acceptance.

Research suggests that children who have boundary problems with their parents are also likely to have problems with their peers (Jurkovic, 1997). Using teacher ratings of prosocial behavior, assertiveness and exclusion by peers, I explored the question of whether peer problems are related to representations of PCA. While there was no correlation between PCA and assertiveness or exclusion by peers, children who depicted PCA did display fewer prosocial behaviors than children who drew more cohesive families (see Table 4).

The next exploratory question was whether PCA specifically is related to more negative child outcomes than is BD in general. The analyses in Table 4 demonstrate that PCA is related to more negative child outcomes than is BD.

**Table 4. Correlations between family drawing ratings and child outcomes**

	PCA	BD
<b>Family Drawing Scales</b>		
Parent-Child Alliances	1	
Boundary Dissolution	.71**	1
<b>Self-Concept</b>		
Cognitive Competence	-.14	-.07
Physical Competence	-.19	-.13
Peer Acceptance	-.19	-.25*
Maternal Acceptance	-.10	-.16
<b>Child Symptoms</b>		
Internalizing	.05	.05
<b>Peer Relationships</b>		
Prosocial	-.29**	-.12
Peer Exclusion	.08	-.01
Assertiveness	.12	.07

N = 47-48  
\*\* $p < .01$  \* $p < .05$

**Structural Features of Drawings and Child Outcomes.** Finally, structural features of the drawings were explored to see if they had any relationship to child outcomes. First I examined relationships between exclusion and child outcomes. When one of the family members was excluded, the children reported lower peer acceptance,  $F(1, 44) = 3.29$ ,  $p < .10$ . Next, I examined the relationship between whether a parent or child was drawn first and child outcomes. When a child was drawn first, either the target child or a sibling, the child exhibited more prosocial behaviors as rated by the teacher on the CBS (Ladd, et al., 1996),  $F(1, 45) = 2.97$ ,  $p < .10$ . Third, I examined the sequence of figures



drawn. When children draw a sequence of parent, child, and then other family members (PC-O), they were rated lower in prosocial behavior,  $F(1,45)=4.35, p<.05$ . Post-hoc tests indicated that it was the group of children who drew themselves and their siblings first, followed by both parents who were rated significantly higher in prosocial behavior than the PC-O group

Family drawing variables were significantly associated with peer acceptance and prosocial behavior. Because prosocial behavior was also related to gender, I conducted a regression analysis to examine whether drawing variables predicted prosocial behavior beyond the effect of gender. Table 6 shows that Alliance ratings are significantly related to prosocial behavior after controlling for gender,  $\beta = -.33, p < .05$ .

## Discussion

Numerous researchers have investigated the negative child outcomes that can result when psychological and emotional boundaries between parent and child break down. However, most of this research has focused on internalizing symptoms. Clinicians have suggested that parent-child boundary dissolution may have negative consequences for children's peer relationships, but this hypothesis has not been previously examined. The results of this study suggest that children's representations of boundary dissolution, especially in the form of parent-child alliances, are associated with negative peer relationships. In addition, this study developed a new scale for evaluating representations of parent-child alliances in children's drawings, and examined the validity of this new scale. Findings also suggest that it is important to

look at both global and structural features of drawings. First I will discuss findings related to the new family drawing scales, then, I will discuss findings related to the structural features of drawings.

A number of studies suggest that children who experience boundary dissolution are more likely to exhibit internalizing behaviors in the form of anxiety or depression (Hetherington, 1999; Jacobvitz, 1999). The results of this study, however, did not show a correlation between children's representations of PCA and internalization. This may be attributed to the fact that internalization is more likely to result from a combination of multiple factors, some of which may not be present in the participants in this study. For example, girls who experience maladaptive parentification are more likely than other groups to experience internalizing behaviors (Hetherington, 1999). While it possible to clearly see parent-child alliances in family drawings, it is hard to tell without further measures whether the drawings reflect actual alliances, the severity of these alliances, and whether these alliances are maladaptive or healthy. Further research should be done to make the connection between family drawings and the observed behavior of parents and children.

It was hypothesized that children's representations of PCA would be related to more negative self-concept. This hypothesis was not supported, although BD was related to self-reports of Peer Acceptance but not the other three scales (Maternal Acceptance, Cognitive Competence, Physical Competence). This finding suggests that other forms of boundary dissolution (role-reversal, triangulation, spousification) may have a greater effect than parent-child alliances on children's self-concept.

The PCA scale was related to more negative child outcomes than was the BD scale. The finding highlights the importance of examining specific patterns of boundary dissolution. Further research with larger samples is needed to identify the precursors and consequences of specific patterns of boundary dissolution.

While there was no relationship between PCA and assertiveness or exclusion by peers, children who depicted PCA did display fewer prosocial behaviors than children who drew more cohesive families. These findings support Bowlby's attachment theory that says that children develop internal working models, which are later used to appraise and guide behavior in new situations and relationships (Bowlby, 1969). From this, we can predict that children who experience boundary problems with their parents are more likely to experience boundary problems with their peers and may have more trouble forming healthy peer relationships.

**Table 5. Associations between structural features of family drawings and child outcomes**

Child Outcomes	Exclusion of Figures Group Means			Parent Drawn 1st vs. Child Drawn First Group Means			Sequence of Figures Group Means		
	No (N = 37)	Yes (N = 9)	F (1, 44)	P (N = 26)	C (N = 21)	F (1, 47)	PC-O (N = 11)	Other (N = 35)	F (1, 44)
Self-Concept									
Cognitive Comp.	3.55	3.54	.00	3.53	3.57	.09	3.44	3.58	.79
Peer Acceptance	3.08	2.71	3.29*	3.10	2.86	2.21	2.88	3.03	.63
Physical Comp.	3.32	3.52	1.34	3.39	3.36	.03	3.52	3.33	1.26
Maternal Accept.	3.04	2.91	.36	3.07	2.95	.47	2.80	3.09	2.00
Child Symptoms									
Internalizing	4.03	3.33	.22	3.50	4.71	ss1.03	5.33	3.60	1.64
Peer Relationships									
Prosocial	2.56	2.48	.26	2.62	2.44	2.00	2.30	2.62	5.15*
Peer Exclusion	3.03	.33	1.29	1.12	4.29	2.97+	1.13	1.11	.02
Assertiveness	1.11	1.11	.22	1.14	1.09	.63	5.58	1.49	3.90*

\*p < .05

+p < .10

**Table 6. Child gender, sequence of figures, and alliance ratings as predictors of prosocial behavior**

	$\beta$ a	Model $R^2$	$\Delta R^2$	$\Delta F$
1 Child gender	.42**	.18	.18	9.029**
2 Child gender	.32*	.29	.11	3.20*
Alliance ratings	-.33*			
Sequence of Figures	-.23			

\*\*p < .01

\*p < .05



Structural features of children's drawings may also provide important information for investigating the effect children's perceptions of their families have on their behavioral and social outcomes. These features include the exclusion of family members as well as the sequence of figures drawn. As expected, children in this study who omitted one or more family members reported lower peer acceptance. The exclusion of family members may represent the child's difficulties in relating to and communicating with others (Spigelman, et al., 1992). According to attachment theory, these poorly constructed relationships within the family will influence the child's relationships with peers. For example, if the child feels distanced from a member of their family it would follow that he or she might have difficulty relating to their peers, or that if they felt rejected by a parent that they might also expect rejection from peers and, consequently, avoid interacting with other children.

I also found that when the children drew themselves and their siblings first, followed by both parents (CC-PP), they exhibited more prosocial behaviors than if the child drew a sequence of parent, child, then other family members (PC-P or PC-CP). However this finding did not hold when gender was controlled. The CC-PP sequence represents a more cohesive family structure where the members are organized in a generational hierarchy with the children being drawn together and more importantly the parents being drawn together. This would indicate that the child perceives the parents to have a close relationship that is not disrupted by the parent-child relationships, an important factor in the adjustment of the child. The quality of the marital relationship significantly related to the development of parent-child alliances (Jacobvitz, et al., 1999). A marital relationship that is weakened as a result of a relationship dissolution, possibly in the form of a parent-child alliance.

The main limitation of this study that should be considered is the relatively small sample size. Therefore, this study should be replicated on a larger scale. With a larger sample, different dynamics associated with cross-sex and same-sex alliances could be investigated. The experience and outcomes of parent-child alliances vary depending both on the sex of the parentified child and on whether the cross-generational alliance is same-sex or cross-sex (Jacobvitz, et al., 1999). A second limitation is the reliance on only one source (i.e., children's drawings) to assess parent-child alliances.

One possibility for future studies is to examine children's verbal reports of their perceptions of family relationships in order to evaluate the ability of family drawings to accurately portray reality. For example, when children draw parent-child alliances it is impossible to know for certain if these alliances actually exist or these depictions are the child's wishful thinking. Malchiodi (1998) suggests that children who draw boundaries between themselves and their parents may feel that there are boundaries in place, or they may draw them because they feel a serious lack of and need for boundaries. It is not possible to determine which of these dynamics is present just by looking at the drawings.

In conclusion, the results of this study indicate that there may be a relationship between children's representations of boundary dissolution and children's socio-emotional outcomes. The findings presented in this study have implications for research and clinical assessment of families. Future research should be conducted to examine the relationship between children's representations and actual relationships between parents and children.

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## Appendix A Alliances Scale

This scale is designed to identify the presence of parent-child alliances. More specifically, this scale evaluates the presence of a closer relationship between parent and child than exists between the two parents. This can be illustrated by a separation of one parent-child dyad from the rest of the family, or multiple alliances (one parent aligned with one or more children and the other parent aligned with one or more children).

P	PC
PC	PC

## 7-Very High

These drawings are immediately recognizable as unusual because the target child and aligned parent may be overlapping or separated from the rest of the family by a significant amount of space and / or a physical barrier. In extreme cases one parent

may be omitted and there appears to be an especially close relationship between the included parent and child. There may also be a noticeable difference in appearance between the aligned parent and child versus the excluded parent, or the non-aligned parent may be less detailed or colorful. The aligned parent and child may be the same size with the excluded parent and family members being represented as either larger or smaller. The excluded parent may have been drawn deliberately last, after other people and objects.

#### 6- High

Drawings meet the criteria of the above category although somewhat to a less extreme degree. The child and aligned parent are separated by a smaller amount of space from the other parent and may only be slightly larger or smaller than the excluded parent. The space between figures may be a result of “mess-ups” or large body parts. There may be less differentiation in appearance between the aligned pair and other family members.

#### 5- Moderately High

At this scale point there are minor signs suggesting alliances (e.g., some physical distinctions between aligned figures and other figures), or subtle variations of major signs (e.g., small amount of space between aligned figures and the rest of the family, including “mess-ups”).

#### 4- Moderate

At this midpoint of the scale it may be difficult to make a clear judgment regarding alliances because the figures may be evenly spaced or perhaps are all the same size. It may be difficult to determine whether differences between figures’ appearance are intentional or the result of drawing ability. Figures may be encapsulated, suggesting boundary problems, but it is not clear that there are actual parent-child alliances.

#### 3- Moderately Low

The appearance of the drawing is characterized more by cohesiveness than by parent-child alliances. If there are signs of alliances, they are very minor and few in number. Any subtle signs of alliances that are present (there may be none) are superseded by indicators of cohesive or healthy relationships.

#### 2- Low

There are no clear signs of alliances, but there may be some minor indicators that make the drawing look less cohesive or healthy than drawings receiving the lowest rating. Family members may be distinguished by gender or each family member may have a unique appearance, but the distinction does not result in the separation of a parent-child dyad from the rest of the family. Spacing is fairly even between all figures.

#### 1-Very Low

These drawings show absolutely no sign of alliances between a child and either parent. The family members are evenly spaced, and sized appropriately given their role in the family (typically dad is the tallest, followed by mom, then self, with siblings being larger when older and smaller when younger). No barriers exist between the figures and all family members are included.

### **Boundary Dissolution Scale**

This scale is designed to identify the presence of boundary dissolution between parent and child, indicating that the emotional and psychological limits that define the relationship are dissolved. This can be illustrated by a separation of one dyad (parent-child, parent-parent or child-child) from the rest of the family, multiple alliances (one parent aligned with one or more children and the other parent aligned with one or more children,

or the children aligned together and the parents aligned together), or exclusion or encapsulation of one or more family members.

P	PC		
PC	PC		P= Parent
P	P	C	C= Child
PP	C		

#### 7-Very High

These drawings are immediately recognizable as unusual because one or more figures may be separated from the rest of the family by a significant amount of space (and/or) a physical barrier, or one or more figures may be completely encapsulated. In extreme cases one family member may be omitted from the drawing. There may also be a noticeable difference in appearance that creates distinctly separate groups within the family, or excludes one family member. One or more children may be drawn larger than the parents or one parent may be significantly larger than all other figures. If there is an excluded person, they may have been drawn deliberately last, after other people and objects.

#### 6- High

Drawings meet the criteria of the above category although somewhat to a less extreme degree. There is a smaller amount of space between separated figures and figures may only be slightly larger or smaller than their role in the family would dictate. The space between figures may be a result of “mess-ups” or large body parts. There may be less differentiation in appearance between separate groups of figures.

#### 5- Moderately High

At this scale point there are minor signs suggesting boundary dissolution (e.g. moderate amounts of space separating figures), or subtle variations of major signs (e.g., small amount of space between aligned figures and the rest of the family, including “mess-ups”).

#### 4- Moderate

At this midpoint of the scale it may be difficult to make a clear judgment regarding boundary dissolution because the figures may be evenly spaced or perhaps are all the same size. It may be difficult to determine whether differences between figures’ appearance are intentional or the result of drawing ability or gender differences.

#### 3- Moderately Low

The appearance of the drawing is characterized more by cohesiveness than by boundary dissolution. If there are signs of boundary dissolution, they are very minor and few in number. Any subtle signs of boundary dissolution that may be present (there may be none) are superseded by indicators of cohesive or healthy relationships.

#### 2- Low

There are no clear signs of boundary dissolution, but there may be some minor indicators that make the drawing look less cohesive or healthy than drawings receiving the lowest rating. Family members may be distinguished by gender or each family member may have a unique appearance, but the distinction does not exclude the family member from the otherwise cohesive family. Spacing is fairly even between all figures.

#### 1-Very Low

These drawings show absolutely no sign of boundary dissolution between family members. The figures are evenly spaced, and sized appropriately given their role in the family (typically dad is the tallest, followed by mom, then self, with siblings being larger when older and smaller when younger). No barriers exist between figures, no encapsulation present, and all family members are included.





## Samuel Cole

### The Effects of ER-beta Ligands on IGF-I Signaling Pathways in the Human Colon Cancer Cell Line, CaCO-2

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**Department of Nutritional Sciences**



**S**amuel Cole is a native of Kansas City, MO and is a Junior majoring in Nutritional Sciences. As an undergraduate, Sam has participated in the Express and MAP Program and has served as a residential Community Advisor. After completing his undergraduate degree, Sam plans on entering a doctoral program in Virology and becoming a research scientist.

## Introduction/Literature Review

Cancer is the second leading cause of death in the United States. Approximately one half of men and a third of women in the U.S. will develop some form of cancer during their lifetime. Colorectal cancer is the third most common cancer diagnosed in both men and women in the U.S. According to the National Institutes of Health, 105,000 new cases of colon cancer will be diagnosed in 2003, with approximately 57,100 deaths expected (1).

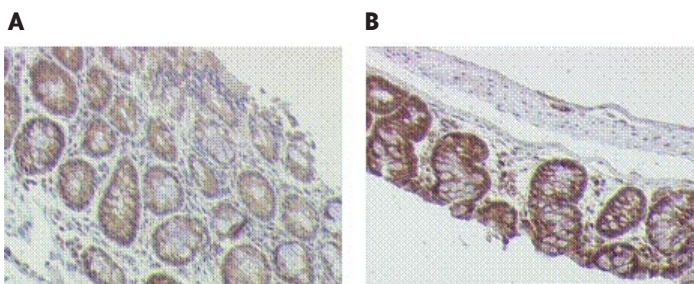
Colon cancers typically begin as adenomas. An adenoma is a type of polyp, which are noncancerous growths on the inner wall of the colon. Over time the adenomas progress to form adenocarcinomas, which can ultimately metastasize to other organs, particularly liver and lung (2).

There are several factors that increase an individual's risk of developing colon cancer. The first risk factor is age. The occurrence of polyps and the risk of colon cancer increase with age, with most cancers diagnosed after the age of 50. Another risk factor is personal history. Research shows that women who have a history of ovarian, uterine, or breast cancer have a somewhat increased risk of developing colon cancer. Inflammatory conditions of the colon such as Crohn's disease or ulcerative colitis place individuals at a higher risk of developing colon cancer (2).

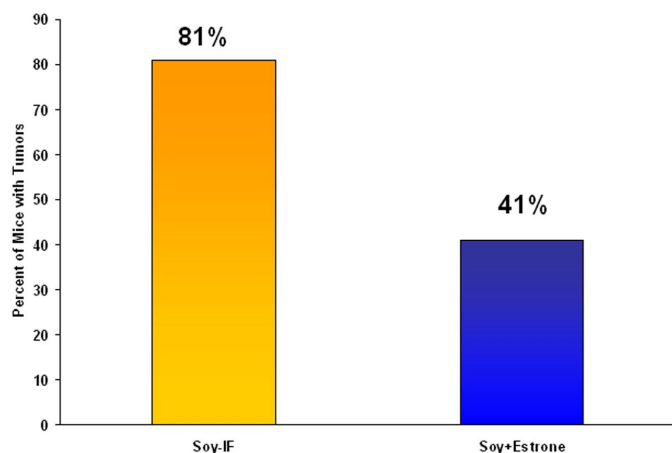
Exercise and dietary factors are also implicated in colon cancer risk. Epidemiological studies suggest the consumption of diets rich in soy products may be protective (3). Soy products contain compounds called isoflavones, which can mimic the effects of estrogen. Such compounds are commonly referred to as phytoestrogens. The role of estrogens in colon cancer has not been defined, but there is recent evidence from the Women's Health Initiative and other studies that hormone replacement therapy may reduce colon cancer risk (4).

## Background Information

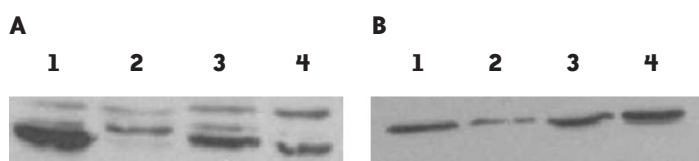
Preliminary results from Dr. MacDonald's laboratory have shown that estrogen receptors  $ER\alpha$  and  $ER\beta$  are expressed in mouse colon (**Figure 1**), and that the incidence of azoxymethane (AOM)-induced colon tumors is significantly reduced by feeding diets containing estrone (E1; **Figure 2**) or a commercial soy fraction (Novasoy, Archer Daniels Midland). Novasoy contains compounds with phytoestrogenic activity, including isoflavones (genistein, daidzein) and saponins. Subsequent work in our laboratory with the human colon adenocarcinoma cell line CaCO-2, which express  $ER\beta$  but not  $ER\alpha$  (**Figure 3**), showed that the soy phytoestrogens all inhibited proliferation.



**Figure 1.**  $ER\alpha$  (A) and  $ER\beta$  (B) expression in mouse colon by immunohistochemistry. Both  $ER\alpha$  and  $ER\beta$  are expressed in normal mouse colon tissue.



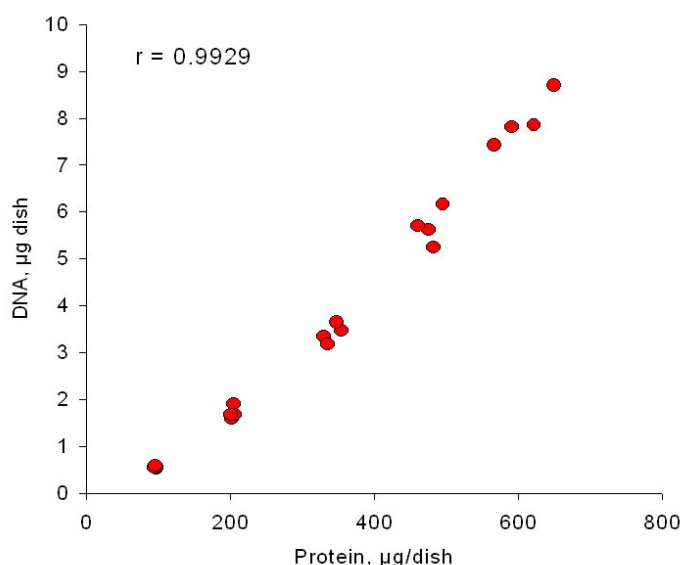
**Figure 2.** Effect of estrone on AOM-induced colon tumors in ovariectomized mice.



**Figure 3.** ER $\alpha$  (A) and ER $\beta$  (B) expression in human cancer cell lines. Lane 1: MCF-7 (breast), Lane 2: CaCO-2 (colon), Lane 3: BT-474 (breast), Lane 4: HT-29 (colon). CaCO-2 cells express only ER $\beta$ .

## Purpose

The goal of my research project was to explore the effects of the natural estrogens 17 $\beta$ -estradiol and estrone, the phytoestrogen genistein, and the ER antagonist ICI 182,780 on proliferation of CaCO-2 cells. MCF-7 breast cancer cells, which are estrogen responsive, were used as a positive control. Preliminary experiments showed that cellular protein and DNA are strongly correlated in CaCO-2 cells, so protein was used as an index of proliferation (Figure 4).



**Figure 4.** Correlation of total cellular protein and DNA in CaCO-2 cells

## Methods

### Cell Proliferation:

CaCO-2 and MCF-7 cells were seeded in 24-well plates at 20,000 and 10,000 cells per well, respectively. Cells were grown in a nominally estrogen-free medium containing 5% charcoal stripped calf serum and no phenol red. After 3 days, medium was replaced with the same medium containing the treatments. Stock solutions of 17 $\beta$ -estradiol, estrone, genistein, and ICI 182,780 were prepared as 1000x concentrates in DMSO. The final DMSO concentration in all media was 0.1%. Cells were refed after an additional 3 days and harvested after a total of 6 days of treatment.

### DNA Determination:

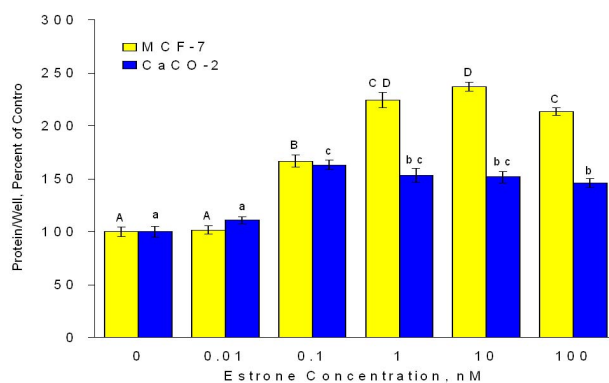
Double-stranded DNA was measured using the PicoGreen reagent (Molecular Probes), using calf thymus DNA as a standard.

### Protein Determination:

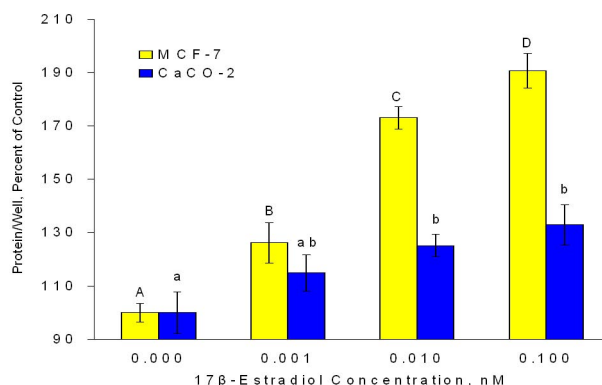
Cells were solubilized by addition of 0.1 N sodium hydroxide and aliquots were assayed for protein using the BioRad Dc kit. BSA was used as the standard.

## Results

Estrone and 17 $\beta$ -estradiol significantly stimulated proliferation of CaCO-2 and MCF-7 cells in a dose dependent fashion. CaCO-2 cells were less responsive than MCF-7 cells (Figures 5 & 6).



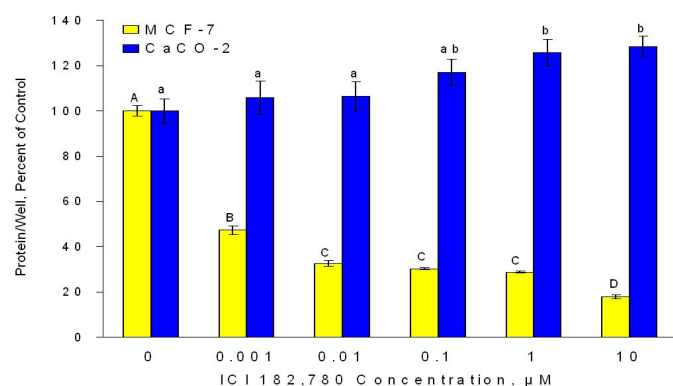
**Figure 5.** Stimulation of CaCO-2 and MCF-7 proliferation by estrone. N = 8 wells per bar. Values within cell lines with different letter designations are statistically different,  $p < 0.005$



**Figure 6.** Stimulation of CaCO-2 and MCF-7 cell proliferation by 17 $\beta$ -Estradiol. N = 8 wells per bar.

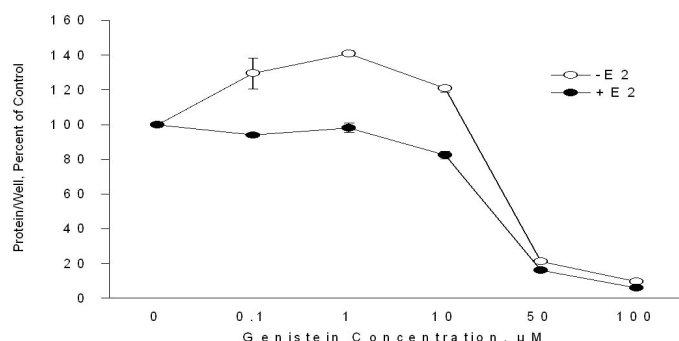


The anti-estrogen ICI 182,780 caused an increase in the proliferation of CaCO-2 cells but decreased the proliferation of MCF-7 cells (Figure 7).



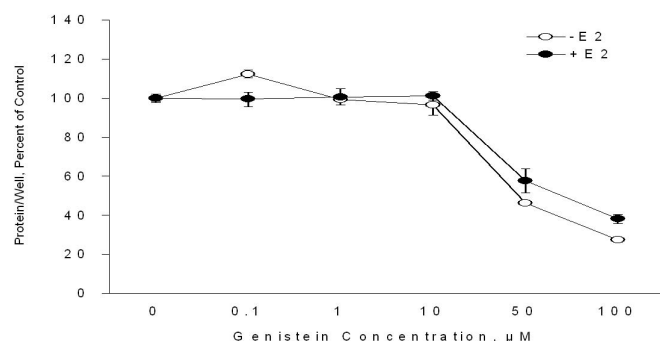
**Figure 7.** Differential effect of ICI 182,780 on proliferation of CaCO-2 and MCF-7 cell lines. N= 8 wells per bar.

In the absence of estrogens, low doses of the phytoestrogen genistein (<10 μM) stimulated proliferation of MCF-7 cells. Genistein in the presence of 17β-estradiol, however, abolished this effect (Figure 8).



**Figure 8.** Effect of genistein on proliferation of MCF-7 cells in the presence and absence of 10 pM 17β-estradiol (E2). N= 4 wells per point.

I found that low doses of genistein had no effect on CaCO-2 cells regardless of the presence of estrogens.



**Figure 9.** Effect of genistein on proliferation of CaCO-2 cells in the presence and absence of 10 pM 17β-estradiol (E2). N= 4 wells per point.

## Discussion

In this model, both ER agonists and antagonists stimulated proliferation of colon cancer cells. Genistein is protective at higher doses, but this effect is apparently mediated via an ER-independent pathway. More research in this area will be needed to further explore the roles of natural estrogens, phytoestrogens, and anti-estrogens in colon cancer.

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## Angela Pashia

### A Cross-Culture Examination of Religious Skepticism

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**J**unior, Angela Pashia, is from the St. Louis area and is majoring in Anthropology and Religious Studies. She currently serves as treasurer of the Anthropology Student Association and is a member of the Golden Key Honor Society. Angela has recently been invited by a scholarly journal to submit a book review for publication regarding religion in Borneo. After completing her undergraduate degree, Angela plans on obtaining a PhD in Anthropology and becoming a college professor.

## INTRODUCTION

Religion is a pervasive aspect of daily life. This should not, however, preclude skepticism about a given aspect of religious practice or religion in general. Interestingly, even though anthropologists have long agreed that religion is a universal feature of human societies, they have not given much attention to the issues of religious skepticism and of the social factors that affect the expression of skeptical opinions.

Scholars of religion use numerous definitions, most of which focus on belief in supernatural entities or experience. This perspective is problematic, as belief is an internal mental state that is not empirically identifiable. Therefore, I rely on Steadman and Palmer's definition of religion as "the communicated acceptance of a supernatural claim, a claim that cannot be shown to be true by the senses" (1995:157). Using this perspective, I define skepticism as communicated incredulity or doubt about a supernatural claim. This doubt may be directed at the religious system in general, a particular practitioner (including shamans, diviners, and other ritual specialists), or specific ritual practices.

In this paper, I address two questions concerning religious skepticism. First, I examine how widespread skepticism is. If Steadman and Palmer's definition of religion is useful, then skepticism should be as universal as religion is, since the definition implies "a willingness to suspend skepticism" (1995:158) about supernatural claims. If skepticism of a part or the whole of a religious system is universal, then I expect to find some expression of doubt in each culture in a cross-cultural database; if religious skepticism is nearly universal, then I should find instances in a statistically significant majority of cultures. In this assessment, I include skepticism that is only directed toward a part of the religious system; therefore, an individual may express doubt about the efficacy or potential of a specific practice or ritual specialist without any expression of doubt about the system as a whole.

The second issue I address is the influence of social factors in the expression of skeptical opinions. Steadman and Palmer argue that the acceptance of supernatural claims "communicates a willingness to accept another person's influence non-skeptically," thereby fostering cooperative social relationships (1995:158). This implies that certain social conditions may encourage an individual to reject the influence of another, which they communicate by rejecting that person's supernatural claims. The social factors I examine include the likely outcomes, such as potential ostracism from a particular group or a sharp division in the community as a whole, and social or political conflict between individuals or groups. Additionally, if social factors are significant, then individuals should express skepticism more often about individuals or practices from outside of the community. Furthermore, if social factors are important influences on the expression of skepticism, then I should find more expressions of doubt about individual practitioners, particularly shamans and diviners, than about specific practices, such as rituals or taboos, because the religious practitioners are active participants in local social and political interactions.

Anthropologists have often overlooked religious skepticism or have treated it as an insignificant footnote in larger studies. However, understanding the religious and social role of skepticism is essential for a more complete understanding of religious behavior and change in religion. Whether people participate in religious activities regularly, participate only when certain individuals are present to witness them, abstain from a given ritual, or avoid rituals or sermons led by a particular individual, social reasons are both empirically observable and central to most human behavior.

## BACKGROUND

The anthropology of religion includes many perspectives that influence scholars, thereby affecting the chance that the ethnographer will record and report instances of skepticism. As anthropologists have discarded past attempts to explain the origins of religion, they have moved beyond the notion that “primitive” man is incapable of skepticism. Many scholars now focus on the social aspects of religious behavior, which brings up the role of the skeptic. Although a few studies have addressed skepticism in a single case study, this is the first cross-cultural evaluation of the social factors that affect the expression of religious skepticism.

### “Primitive” religious thought

Early scholars in the anthropology of religion often based their work on a classic nineteenth-century “evolutionary” model, which attempted to show that religion began in a simple form and developed into complex codified monotheism, or on unsupportable psychological analogy, rather than on verifiable facts (Evans-Pritchard 1965:10-11). One glaring example of this is Lévy-Bruhl’s *How Natives Think*, in which he proposes the distinction between logical and prelogical thought. Based on accounts of questionable reliability, he claims that “primitives perceive nothing in the same way as we do,” as their entire worldview is colored by mystical associations (Lévy-Bruhl 1926:30). He uses the term *prelogical* to designate logic that is based on mystical connections and that “does not bind itself down, as our thought does, to avoiding contradiction” (1926:63).

However, Lévy-Bruhl fails to clearly define certain terms, as evidenced by the need for later writers to “attempt to explain what Lévy-Bruhl meant by his key expressions and concepts” (Evans-Pritchard 1965:81). Further criticism is founded on the fact that he was a “mere armchair theorist” (1965:81), a scholar who has never traveled to witness the individuals under study in situ, who instead based his theories on data collected by others. His sharp distinction between logical and prelogical societies is unjustifiable, as elements of behavior indicative of both categories are present in all societies.

Radin’s *Primitive Man as Philosopher* offers an important distinction between the average member of society and the intellectual minority, arguing that western historians have focused on the European and American elites, while ethnographers have overlooked the exceptional individuals in an attempt to describe the average experience in that culture (Radin 1957:4). Based on the hypothesis that the distribution of exceptional individuals is roughly the same cross-culturally, Radin claims that the most significant difference between western society and “primitive” society is due to the larger populations in western society, allowing larger congregations of intellectuals (1957:365). This suggests that skeptics may also be more visible in larger populations, though the proportion of skeptics may be nearly uniform cross-culturally. In addition, Radin’s consideration of the tendency for ethnographers to focus on the average and discard the exceptional provides one viable explanation for the absence of evidence of skepticism in some societies: Anthropologists have largely ignored such individuals.

### Study of Religion

Steadman and Palmer (1995) propose a definition of religion that is limited to the identifiable, therefore scientifically verifiable, aspects of religious behavior. As touched upon by Evans-Pritchard (1965) years earlier, the various definitions of religion commonly in use are faulty, due to the fact that they rely on the identification of beliefs. Issues of translation often

complicate this identification, as the ethnographer may fail to fully understand all connotations inherent in a term (Hahn 1973:210). Another consideration is the degree of sincerity on the part of the informant (1973:216), but we cannot determine beliefs through the apparent sincerity of a person’s claims. Even though an individual may admit to inaccurate or insincere statements, the ethnographer cannot scientifically identify the reported beliefs behind any such claims, making all belief-based evaluations unverifiable.

As one cannot know the true inner thoughts, emotions, or beliefs of another, the social scientist must rely upon the empirically identifiable claims and actions of those under study. Therefore, Steadman and Palmer suggest defining religion as “the communicated acceptance of a supernatural claim, a claim that cannot be shown to be true by the senses” (1995:157). This communicated willingness to suspend skepticism relates to the social relationships of the individuals involved and may serve to encourage cooperation between those in agreement (1995:158). My study focuses on the logical converse – the expression of skepticism, and how this relates to social interactions, including competition and conflict.

Several studies have applied this focus on religion as a matter of social interactions. One example of this is Palmer’s discussion of ritual taboos among fishermen (1989). Previous studies attempted to correlate the level of risk in a given activity with the prevalence of taboos related to that activity to support the hypothesis that taboos function to reduce anxiety during risky activities (Palmer 1989:60-61). These claims rely upon the assumption that the individual believe in the taboo, which is not identifiable. Palmer proposes that, instead, the communicated acceptance of taboo claims fosters cooperation among individuals (1989:64). He demonstrates that there is a clear correlation between the frequency of taboos and the number of individuals who must cooperate, with few if any taboos observed by lone fishermen and several observed among a large crew (1989:65).

The role of the shaman as a medium, communicating with ancestors and relaying messages to the living, may also be analyzed in terms of identifiable behavior (Steadman and Palmer 1994). While the validity of their claims to supernaturally travel to the realm of the ancestors is not verifiable, shamans act as religious specialists with extensive training in the memorization and interpretation of traditional knowledge (1994:176-177). In this, Steadman and Palmer claim that the rejection of a shaman’s influence implies a rejection of tradition, and the acceptance of supernatural claims about dramatic tricks implies the acceptance of the shaman’s claimed role as interpreter of tradition (1994:181-182). While this may apply in some instances, I argue that the rejection of a shaman may apply only to that individual’s mastery of shamanic practice, without necessarily including any further implication in regard to their acceptance or rejection of the tradition as a whole.

### Skeptical Perspectives

Skepticism has a long history in literate societies, as evidenced by passages in the Bible and the Mahābhārata, but many scholars have assumed that it does not exist in indigenous cultures (Goody 1995:674,676). The literary tradition makes it easier to substantiate the claim of skepticism, as writing functions “to make the implicit explicit,” and allows a compilation of skeptical expressions through time, whereas such incidents are not documented and often pass out of memory relatively quickly in non-literate societies (1995:676). In addition to difficulties in identifying a tradition of skepticism in oral cultures, ethnographer bias has often come into play, as early scholars



have focused on cultural norms and overlooked or rejected incidents that did not fit this model (1995:677).

In his discussion of the intellectual temperament among “primitive man,” Radin provides an early acknowledgement of skepticism. He claims that “unhampered self-expression” is highly valued by indigenous groups, with the condition that each individual take responsibility for the consequences of his/her actions (Radin 1957:34-5). Therefore, the choice to disbelieve a supernatural claim may incite ridicule and may cause concern among close associates, due to the claimed potential supernatural repercussions of that denial, but is otherwise accepted unless the skeptic directly or indirectly brings harm to someone else (1957:50, 55).

Assorted studies have dealt with skepticism among various groups. Lévi-Strauss outlines an example of skepticism among the Nambicwara of central Brazil (1963:169-172). The sorcerer of the group claimed to have been abducted by a thunderstorm, an event that all claimed to believe possible, but multiple members spread speculation that the sorcerer was using supernatural claims to conceal a secular reason for his absence. This group included individuals from two separate bands that had not fully integrated as a single community, as one had seceded from a larger band and an epidemic had decimated the other band (1963:170). As the sorcerer was from the segment that had seceded, those from the decimated band spread the rumor that the sorcerer had used the supernatural excuse to conceal a meeting with members of his former group, possibly to request permission to return or to plan an attack on the small contingent of outsiders (1963:171). This example supports the proposition that social or political division will be a factor in the prevalence of skepticism. However, the sorcerer’s version of events was never publicly disputed (1963:171), suggesting that they were reluctant to risk losing the cooperation of the members of the other group.

Lévi-Strauss also analyzes biographical information collected by Franz Boas on an exceptional individual, Quesalid, a Kwakiutl shaman (1963:175-178). To Boas, Quesalid expressed a skeptical view of shamans and claimed that he had become a shaman in order to learn their tricks and expose them. In fact, he became a respected, effective shaman and, in ritual competitions, exposed other shamans as ineffective, if nothing else. Lévi-Strauss notes the role of performance, including a considerable amount of illusion, and the importance of community expectations of improvement following a public ritual (1963:180). This implies that social relations, as they are affected by the expectations resulting from the ritual, are integral to a shaman’s success.

In his analysis of agricultural and fishing magic in the Malay state of Kelantan, Firth notes a pragmatic attitude toward rituals, incidents of skepticism, and some social factors that appear relevant to these expressions of skepticism (1974). People perform certain rites as precaution, in case they actually help, rather than due to the claim that these rites are significant on their own terms (1974:195). Additionally, they consider practical concerns when discussing the efficacy of a rite or observance of a taboo. For example, an informant rhetorically asked how the transgression of a particular marine taboo would prevent wind during the windy season (1974:198). Firth noted skepticism about a practitioner, or practitioners in general, and his performance, but stated that this skepticism does not reflect doubt about “the significance of magical forces” (1974:202). In many cases, the claim that an individual has supernatural powers is conditional, based upon the efficacy of rites that individual performed that were claimed to have empirical results, such as an effective cure for an illness (1974:208).

Firth’s account provides notable suggestions about social factors that may affect the expression of skepticism. In one incident that he cites, the practitioner wanted “a large sum” as a fee, which led an individual to suggest contracting to pay four times as much if the healing works instead of trusting that the ritual will be effective (1974:218). Unfortunately, Firth does not compare that fee with the standard fee for that service and does not provide more detailed background of other social factors in that situation. Another incident involved a ritual that included multiple tricks, but one of these produced the wrong result. Although the practitioner transformed a paper bird into an actual bird, the bird was dead. Expressions of skepticism centered on the fact that the practitioner produced a dead bird and could not revive it (1974:219-220). This suggests that proper performance, including adeptness in deceptive arts, is an important factor in the expression of skepticism. Additionally, the sponsor of the ritual may expect to receive a useful item, such as a pet bird, as a result and may make skeptical claims when instead he receives a useless item, such as a dead bird.

Another ethnographic study of skepticism focuses on the Manjaco of West Africa. The Manjaco assert that they, not spirits, are “the authors of their destiny” (Gable 1995:245). They hold a ceremony to renegotiate customs with the spirit approximately every twenty-five years (1995:243) and refer to the relationship between humans and spirits as a contractual agreement (1995:251). People compare spirits to street merchants, as they may provide rewards, but they also may use trickery to cheat a human (1995:247). Youth groups perform parodies of rituals (Gable 2002:48), and, when they actually participate in a ritual, they claim that “it’s a game... We are just playing” (2002:51).

Gable argues that skepticism is a key element of what is glossed as Manjaco religion (1995:254), and that it is related to “a native empiricism” and “a distanced pragmatism” (1995:249). While earlier anthropologists have ascribed the prevalence of skeptical expressions among the Manjaco to the effects of colonization, Gable argues that this is an ethnocentric assumption that is not verifiable (1995:252-253). Rather, he connects the acceptance of skepticism with the lack of hierarchy in their religion, as the relationship between spirits and humans is seen as equals participating in contractual terms (1995:254).

## METHODS

I tested my hypotheses using statistical and contextual analyses of data from the online version of the Human Relations Area Files (HRAF; <http://ets.umd.umich.edu/e/ehrafe/>). The HRAF is a coded cross-cultural database of ethnographic information from books, articles, and dissertations. Within the HRAF, I used the Sixty Culture Probability Sample, a standard list including one culture chosen randomly from each of sixty different culture areas.

For each culture in the sample, I performed four code searches and one keyword search. I used codes 771 (general character of religion), 756 (shamans and psychotherapists), 781 (religious experience), and 789 (magic). When a search of a single code in a single culture retrieved more than 100 results, I limited the search with the keywords “skept\*”/“sceptic\*”, “doubt\*”, and “disbelie\*”, with the Boolean asterisk serving to catch variants such as “skeptical” and “skeptics” or “disbelief” and “disbeliever.” To catch any instances of religious skepticism that may be present in passages that are not listed by the codes I used, I also performed a keyword search for “sceptic\*/skept\*”. In addition, for cultures in which these searches provided weak evidence or no instances of skepticism, I added a keyword search for “critic\* or cynic\*.”



## FINDINGS

For the first hypothesis, I found instances of religious skepticism in 52 of the 60 cultures. (In many of the cases, individuals directed skepticism only toward a certain aspect of the religious system, rather than toward the system as a whole.) This proportion of observed cases is significantly higher than an expected distribution of 50/50 (goodness-of-fit test:  $\chi^2 = 32.2$ ,  $df = 1$ ,  $p < 0.001$ ), indicating a near-universal phenomenon. However, I suspect that skepticism is also present in the eight cultures for which no instances were found, based on the fact that only a fraction of the literature available on any given culture has been included in the database. For example, in a brief literature review of the Iban, an indigenous group of Borneo, I found several references to skepticism. Yet I only found three instances in the database, which supports this suspicion.

For the second hypothesis, there is a correlation between social factors and the expression of skepticism. Some of the instances I found directly addressed social factors, such as people commenting on either the social reasons for limiting or suppressing the expression of skepticism or the social consequences suffered by a skeptic. In one example from the Hopi, women dumped rubbish near the home of a known skeptic (Titiev 1972:200). Among the Tlingit, several skeptics became “believers” when they were accused of witchcraft at the same time that a virus epidemic hit the community (De Laguna 1960:200, n.56).

In total, I noted 225 passages that indicated the presence of skepticism. (In those cultures for which I collected more than ten examples, I did not record those that were redundant.) Of the total number of instances found, 61 include little or no contextual information. Seven deal directly with the social reasons for limiting skeptical expressions or the consequences of such expressions. Twenty-one instances deal with issues of social and political conflict, 13 of which are related to conflict between religious groups, such as Christian converts rejecting traditional practices and traditionalists rejecting the supernatural claims of missionaries. This category includes instances from twelve cultures.

In 64 instances, a person directed skepticism at the claims of another without expressing doubt about the possibility of such a supernatural occurrence. Accounting for redundancies, I found instances of this type of skepticism in 32 cultures. In 48 instances, someone directed skepticism at a particular practice, but in nine of these, the person stated that s/he continues to perform the act just in case it works. I noted skepticism about specific practices in 22 cultures and the “better safe than sorry” approach in six cultures, with a total of 25 cultures represented, as instances of both were present in some cases. This provides some support for the prediction that individuals should express skepticism more often about a practitioner than about a specific practice. However, more specific contextual information is needed to determine how commonly people continue to observe practices, despite expressing doubt, compared to how often they continue to attend rituals performed by and obey proscriptions ordered by a practitioner about whom they have expressed doubt.

In addition to these, I encountered some types of skepticism that I did not account for in my predictions. In ten instances, representing nine cultures, there was some indication of skepticism in a myth or ritual, often warning the audience to not be skeptical. This was not the sole evidence of skepticism for any culture, but it is significant supporting evidence: If no skeptics were ever present, there would be no need to ritualize warnings against skepticism. Another social factor affecting skeptical expressions is the influence of culture change, including formal

education, which was the context for skepticism in 35 instances, representing 21 cultures. In many of these instances, children begin to doubt supernatural claims after going away for formal schooling, where empirically testable explanations are offered for specific phenomenon, and where the child is often exposed to Christianity or Islam, which present competing supernatural claims. This factor is also present in cases where an individual goes to work in a situation where they have a considerable amount of contact with people with more formal education, such as hired help in the home of a European merchant.

Certain predictions were difficult to test with the HRAF data, such as the prediction that people would be more likely to express skepticism about people or practices from outside of the community. One complication was the fact that, in the vast majority of the instances of skepticism directed at a particular practitioner, I could not tell whether the individual was a member or an outsider in the community. In this regard, I was unable to sufficiently test the prediction regarding social conflict, as the results often did not include information on the practitioner’s social standing and relationships within the community, so I could not discern whether the skeptic expressed doubt about a friendly neighbor or whether there was some underlying conflict between the skeptic and the practitioner.

Another complication in using HRAF data to test whether people express skepticism more often about outside people or practices is the influence of missionaries, especially Christians. With the level of cultural context available in this HRAF search, it is difficult to determine at what point the presence of Christians moves from the realm of dealing with outsiders to simply being in a religiously plural society. When one’s cousin or neighbor is a Christian because s/he was raised that way by Christian parents, it is difficult, without additional information, to say if that person views Christianity as an outside practice or as something that has been a part of the community since s/he was born.

## CONCLUSIONS

This analysis of HRAF data clearly shows that religious skepticism is at least nearly universal and supports the hypothesis that social factors affect the expression of skeptical opinions. While a correlation between social factors and skepticism is present, more in-depth contextual information is needed to fully address this issue. In this study, I was unable to adequately address the prediction that skepticism would be more commonly expressed about people and practices from outside of the community because of insufficiently specific contextual information. Detailed case studies are needed to fully address this issue, as well as the mechanisms by which these social factors influence skeptical expressions.

A great deal of future research is needed for a better understanding of religious skepticism and the social factors that encourage or discourage the expression of skepticism. As mentioned briefly above, I suggest further tests of the universality of skepticism by literature reviews of those societies for which I found no evidence of skepticism in the HRAF search. In addition, the interplay between skepticism and culture change deserves to be addressed, as culture change was a factor in a considerable number of incidents I found. The effects of migration, including influences affecting rural-to-urban migrants, refugees, and temporary wage laborers, may also be significant factors in the social dynamics of religious skepticism, as people are exposed to new perspectives and may have more anonymity, which may reduce the social costs of skepticism.

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## Kimberly Adams

### Help! I've Voted But I Can't Get Up! Competency, Electoral Participation, and Assisted Care Living

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## Introduction

Senior citizens (aged 65 to 74) vote at the highest rate (70%) of any age group in the United States (U.S. Department of Commerce 2002). The power and impact of this voting block is not lost on candidates for any office, as evidenced by campaign tactics targeting elderly voters. Adding to the physical problems older voters often face just trying to get to their polling places, other characteristics can make them a target for voter fraud or abuse. Many elderly vote using mail-in absentee ballots, which, in some circumstances, can be illegally filled out on behalf of elderly voters (Wild 2002). Also, as evidenced in the November 2000 election and the confusion with "butterfly ballots" in Florida, some older voters may have health problems that make voting difficult (Henderson and Drachman 2002). While previous research has revealed evidence of these occurrences, more study is needed to determine the impact of possibly erroneous or illegal elderly votes on elections. This project follows up on a situation where these issues were raised, adds to it the issue of voter competency, and asks the following question: How is competency an issue for voting and voter fraud?

## Politically active seniors

Seniors vote at a much higher rate than their younger counterparts. In 2000, there were thirty-five million people 65 or older in the United States, a 12% increase from 1990 (U.S. Dept. of Commerce 2001b). This group, comprising 12.4% of the total population, holds a great deal of political clout but is also a relatively easy target for voting abuses. The U.S. Census Bureau has shown the 65 to 74 age group is the peak group for voting participation. 70% of this age group voted in the 2000 election—comprising more than 11% of the total voting population in that election (U.S. Department of Commerce 2001b). In Missouri, more than 80% of the people in this age group voted in 2000. The numbers are comparable for Boone County, although college students, who register in Boone County but do not transfer registration after moving out of the city, lead to overestimation of younger age groups. This high voter participation makes seniors a highly valued constituency when it comes to political campaigns. Much political advertising and campaigning is directed at senior citizens.

**Table 1. United States, Missouri, and Boone County Voting**

Age group	18-24	25-44	45-64	65-74	75+
United States	45.4% <b>32.3%</b>	59.6% <b>49.8%</b>	71.2% <b>64.1%</b>	76.2% <b>69.9%</b>	76.1% <b>64.9%</b>
Missouri	42.4% <b>30.1%</b>	69.9% <b>60.3%</b>	86.3% <b>79.0%</b>	86.4% <b>81.4%</b>	86.7% <b>74.6%</b>
Boone County	66.6% <b>17.5%</b>	99.0% <b>38.9%</b>	97.1% <b>65.9%</b>	87.2% <b>67.6%</b>	85.7% <b>56.5%</b>

Many seniors remain or become politically active in their older years, as evidenced by their high voter turnout. Also, participation in organizations such as the AARP, which has extraordinary lobbying power at the state and federal levels, is another way for seniors to be politically active. It is quite logical that seniors would be politically active, since many of them take advantage of federal and state programs such as Medicaid, Medicare, and subsidized housing. Based on Conway's rationality test for high levels of political participation, it is rational for older Americans to maintain high levels of



political participation. Seniors (1) have specific preferences for certain policy outcomes, (2) can rank those outcomes in order of preference, (3) have (individually) rules by which they can link their preferences to actions that will lead to the outcomes they want, and (4) they choose the alternatives that will contribute to their desired outcome (Conway 1991). Also, many seniors are in retirement and have more free time with which to invest in political participation, thus have few costs for their political participation. According to Glenn and Grimes (1968), instead of leading to a decline in voting, old age leads to higher rates of voter turnout because political participation fills the void left in the lives of seniors with the cessation of other commitments.

### **The elderly, voting rights, and competence**

Elderly Americans face many barriers to exercising their right to vote. These barriers stem from medical problems that come with age. These medical problems not only affect their physical ability to get to the polls, but also their mental capacity to be educated voters.

#### **Access**

LaFratta and Lake (2001) address the voting process as it relates to the elderly. Specifically, they focus on state and federal laws that affect elderly voters. Their primary example of practices that disenfranchise older voters is the problem with punch-card ballots in Florida during the 2000 presidential election. They say these ballots were difficult for seniors due to their physical and tactile limitations, and that polling places in general tend not to be “senior friendly” due to various barriers. LaFratta and Lake also highlight some of the benefits laws such as the Americans with Disabilities Act and the Voting Accessibility for the Elderly and Handicapped Act can provide for the elderly. Their criticism, however, is the lack of stringent enforcement of these acts to their fullest extent, as well as their often-conflictual nature in regards to state voting laws.

Considering how much impact government activities can have on seniors, barriers to their voting access can be severely problematic since, according to Wolfinger and Rosenstone, “[t]he easier it is for a person to cast a ballot, the more likely he is to vote” (1980: 8). They explain that higher costs, such as learning about candidates, deciding how to vote, and getting to the polls, lead to a lower probability of voting. If seniors struggle too much to vote, they may just abstain. Although state laws vary, much of the problem regarding access to polls for seniors may be alleviated through the use of absentee ballots, which seniors can request in advance of an election, then simply mail in their vote. In an interview for the AARP’s publication, *AARP Modern Maturity*, political scientist Larry J. Sabato discussed the increase in absentee and mail-in voting, stating that over 20% of all U.S. voting is now done in this manner (Wild 2002). Many seniors take advantage of this option.

#### **Competence**

Kingshuk Roy (2003) also writes on state and federal laws affecting the voting of elderly citizens, but he focuses on how state laws specifically can disenfranchise elderly voters. Many states revoke an individual’s right to vote after a judicial determination of incompetence, but Roy is concerned with the practice of some states of revoking voting rights when a person enters guardianship. According to Roy, the elderly are placed under guardianship in disproportionately high numbers, often for physical reasons as opposed to mental incompetence, thus these laws can unfairly restrict their voting rights. Roy also details several court cases regarding elderly individuals under

guardianship and their respective voting rights. He argues that the courts are moving towards an assumption of competence in most cases. He unconvincingly argues that the influence of elderly voters who may not be competent enough to vote has no significant impact on the outcome of elections.

Following the election fiasco in Florida, several neurologists explored the question of whether patients with dementia voted. Their study found many patients with mild to moderate dementia voted in the 2000 presidential election (Karlawish et al. 2002). While emphasizing their report was not meant to imply patients with dementia should be denied the vote, they claimed voting is “one example of the kinds of activities a person gradually loses the ability to perform as dementia progressively impairs the ability to make decisions and express preferences” (1102). In a similar study, Ott, Heindel, and Papandonatos determined that “a large proportion of persons with cognitive impairment, including some with severe dementia, continue to exercise the right to vote” (2003: 1547). In comment on Karlawish et al., Henderson and Drachman related the same problem to Alzheimer’s disease:

Precisely because AD insidiously erodes the ability to make reasoned judgments informed by knowledge of recent and remote events, it is somewhat unnerving to consider that patients with dementia may routinely contribute to selecting the leader of the free world. (2002: 995)

But Henderson and Drachman are careful to point out that a diagnosis of Alzheimer’s disease does not mean a person is unable to make rational voting decision. They also raise the point that “incompetent voting is no more hazardous to the public than irrational voting by an uninformed citizenry” (996).

### **Potential for Corruption**

The increased use of absentee ballots by the elderly, combined with the fact that many senior citizens may be mentally incompetent or physically impaired, opens the potential for corruption. This potential is especially worrisome in the case of nursing homes, with nearly 1.5 million American residents, most with cognitive impairments (Henderson and Drachman 2002). Please recall, even in the states where mental incompetence disqualifies one from voting, a person must still be adjudicated incompetent by a court before losing this right. Many nursing home residents that may be mentally incompetent have not gone through this process. Although there is no thorough study to confirm this, it is conventional wisdom that some candidates and party organizations prey on elderly residents, particularly in nursing homes (McManus 2000: 107-8).

The AARP warned its members to beware of those who may take advantage of them, or steal their vote. Absentee ballots are considered the area most ripe for fraud and abuse (Wild 2002). And these fears are not merely conjecture, as evidenced by a series of articles published in the *Dallas Observer* from June 2001 to March 2003. In these articles, journalist Jim Schutze details how certain political campaigns, candidates, and “vote brokers” would unlawfully “assist” voters (specifically, elderly and minority voters) with their absentee ballots. According to Schutze, vote brokers would pick up large numbers of absentee ballot applications, take them around to the elderly in low-income and/or high minority districts, and “help” people fill out the applications. The *Observer* (as well as the *Dallas Morning News*) reported that these vote brokers would then either collect the uncompleted ballots after they were dropped off by the postman, pressure older voters to fill them out to the vote broker’s desire, or simply collect ballots from an area, then sell

them to campaigns so the campaign might “rush the polls” with votes in their favor. Votes attained in this manner were argued to have determined the outcome of several city issues and elections (Schutze 2001-2003).

In defense of questionable voting practices, some political activists pose the argument that these activities are not corruption, but legal assistance to voters that might be otherwise disenfranchised. If it is difficult for seniors to vote, political parties and candidates have an incentive to make it easier for seniors to vote. They can request absentee ballots, provide information, and even convey seniors to the polls in order to increase the voter turnout in favor of their respective causes. In Florida, a third to a half of candidate campaigns legally helped other citizens vote absentee (McManus 2000: 105-106).

The potential for organized fraud within nursing homes is quite a cause for concern. 4.5% of seniors aged 65 and older live in nursing homes (U.S. Department of Commerce 2001a). Henderson and Drachman (2002) worry that nursing home residents could be perceived as a potential source of votes, especially since no guidelines currently exist regarding voting among people with cognitive impairments such as dementia. Many nursing home residents are dependent on their caregivers for help with their day-to-day activities, and could be easily swayed or taken advantage of by these individuals. Swerdloff et al. (2002) offer the following suggestion as to how this threat may be alleviated, although their solution also leaves room for further corruption.

The capacity to vote derives from the abilities to either produce or describe the steps necessary to produce documents to register to vote... At the polling station, this assessment should be the charge of election judges. And at the home or the nursing home, where people complete absentee ballots, this assessment should be the charge of the family caregiver or the person who serves in an equivalent relationship. (149)

This plan leaves open the opportunity for family caregivers or others to take advantage of the senior in their care, possibly voting for them instead of on their behalf.

### Boone county assisted care facilities

Missouri, with a significantly higher voter turnout rate for seniors than the U.S. average (80% to 72%, respectively), provides an interesting case study to determine the influences of nursing home administrators on the political activity of seniors in their care, as well as to determine the opportunities for corruption related to senior poll voting/ absentee voting. Boone County has a population of over 135,000 and nine nursing homes (as defined by Medicare). Over one-fifth of the population in Boone County is over 65, and over 60% of that population voted in the last presidential election. Thus, Boone County provides an interesting case study.

For this project, there were two primary methods of gathering information. First, statistical analysis of voter information was used to ascertain the impact of elderly voters in Columbia. Second, in-depth interviews with individuals supervising activities of seniors were used to gain a sense of perspective in regards to the political participation of seniors in the Boone County, Missouri.

Voting information for current Boone County registered voters, including dates of birth, precinct, ward, township information, and voting data back to 1982 was obtained from the Boone County Clerk. The voter turnout of seniors in Boone County was compared to that of other age groups, and was used

to determine how the voter turnout as self-reported by nursing home administration compared to the actual voter turnout for that respective location.

The series of in-depth interviews was conducted to gain a better understanding of the interaction between institutional caregivers and senior voters. Two groups of individuals were interviewed: nursing administrators and activity directors, as well as local election officials (see appendix for a list of questions).

Nursing home activity directors and administrators at five nursing facilities in Boone County were asked a series of questions designed to elicit information regarding the role they play in the political participation. The focus was on the interaction between nursing home administration and the local election office in order to determine the level of independence that exists within the nursing home in regards to the political activities of seniors. Administrators were also asked questions related to their own political activities and those of the nursing home ownership to determine what, if any, political incentives may exist to encourage political activity within the home.

**Table 2. Boone County Nursing Homes (Sample)**

Nursing Home	Size (Residents/ Beds)	Ownership	Percent of Short-Stay Residents with Delirium	Health Deficiencies Reported
A	50/60	For-Profit Corporation	0%	2
B	65/97	For-Profit Corporation	3%	18
C	114/132	Non-Profit Corporation	0%	11
D	17/19	City/County Government	0%	8
E	15/16	Non-Profit (Church Related)	13%	1

\*As reported by Nursing Home Compare, a Medicare agency that rates and investigates nursing homes.

The organizations sampled represent various sizes and ownership of nursing homes. The “percent of residents with short-stay delirium” and “health deficiencies reported” categories are two of the many measures used by Nursing Home Compare (a Medicare nursing assessment agency) to determine the quality of care provided at each home. For both categories, the lower the percentage, the better.

Three local election and state senior services officials were asked a series of questions regarding the legal issues relating to senior voting, competency, and absentee ballots. Their answers provided an overview of local laws and regulations governing absentee ballot distribution and collection, an understanding of previous court cases and current laws affecting senior voters, insight as to what inherent difficulties exist in regards to competency and voting, and supplied further insight into the roles played by different individuals (nursing home directors/ administrators, activity directors, election officials, families, etc.) in the absentee voting process for seniors in nursing homes.

The in-depth interview with Boone County Clerk, Wendy Noren, yielded much information related to how absentee voting

is conducted in the county, as well as a governmental perspective as to why regulation and prevention of absentee voting fraud can be quite difficult. Noren said absentee ballot fraud was the most common type of fraud, and, as a result of a major incidence of this type of fraud in St. Louis in 1982, Missouri has stringent laws regulating absentee balloting. Lists of those who vote using absentee ballots are no longer available to the general public, but solely to political parties and campaigns. In some areas of Missouri, these lists are not available at all. Noren says this is due to the fact that, when the lists were available, people would pick up ballots on behalf of others, then return them (whether the individual whose name was on the ballot had actually voted was questionable). In Boone County, absentee ballots delivered to nursing homes are taken in person by a bipartisan team that ensures the voter fills out their own ballot. Ballots must be returned to the county clerk's office either by this team, the voter, or by mail.

Under the Voting Rights Act (1965) and its subsequent amendments, individuals can have anyone they like (save their employer or union representative) "assist" them with their vote, but Noren says determining where that assistance crosses the line can be a tricky issue. On the one hand, it is considered desirable to have the system as open as possible to make it easy for those who want to vote to do so. However, according to Noren, the more open the voting system becomes, the more opportunities for fraud. Noren also notes that it is difficult to prosecute cases of absentee voter fraud concerning the elderly because many of the elderly victims cannot recall or testify. In Noren's opinion, the bipartisan team is the best way to protect nursing home voters from absentee fraud, but she notes that voting rights continue to be a battleground between accessibility and protection.

The results of the in-depth interviews with administrators for the Boone County assisted care facilities involved organized

political activity, voter registration and turnout, administration involvement in the political activity of residents, politically active residents, and organized current event activities.

Organized political activities were described to interview subjects as planned events either political in nature or put on to accomplish some political goal. While several of the homes said they had no such events (A, B, and D), others (C and E) had some organized political events. One home served as a polling place in the past, and the other had voter registration drives in the past, distributed pamphlets to residents on some political issues (such as candidate brochures received in bulk the mail), and held several press conferences at the home.

Numbers for voter registration and turnout were self-reported by nursing home administration (starred values) and assessed from Boone County registration and voting data (italicized values). This information is not available for D, as it is a home care service that sends nurses to the homes of its senior clients. The numbers provided by the administration were helpful in determining how aware the administration was of the political activity of the residents, and the actual voter turnout helped us compare how the voter turnout rate of seniors in the homes compared to the voter turnout rates for other seniors. The disparity between the self-reported values and the statistical information provided by the Boone County may be partially or completely attributed to the different times the information was gathered relative to the election data provided.

"Administration involvement in the political activity of residents" is the sum of a series of questions designed to illicit information from the administration regarding how much influence they had on the political activity of their residents. While all admitted they would assist residents (at the resident's request) in acquiring an absentee ballot, most did not have any further involvement in the voting process of their residents. This is likely due to the fact that the Boone County Clerk's office has

**Table 3. Political Activity in Assisted Care Facilities**

<b>Nursing Home</b>	<b>Organized Political Activity</b>	<b>Voter Registration &amp; Turnout</b>	<b>Administration Involvement in Pol. Activity of Residents</b>	<b>Politically Active Residents</b>	<b>Organized Current Events Activities</b>
A	NONE	1 VOTE* <i>3 Registered</i> <i>1 Voted</i>	-Assists residents in acquiring absentee ballots	2%*	NONE
B	NONE	15-20 VOTE* <i>38 Registered</i> <i>3 Voted</i>	-Assists residents in acquiring absentee ballots	19%-25%*	WEEKLY MEETING
C	-Voter registration drives -Distribute pamphlets -Press Conferences	10-12 VOTE* <i>9 Registered</i> <i>5 Voted</i>	-Assists residents in acquiring absentee ballots -Circulate petitions	8%-9%*	WEEKLY MEETING
D	NONE	NOT AVAILABLE (Home care service)	-Assists residents in acquiring absentee ballots -Staff can help clients read or mark absentee ballots	MOST*	NONE
E	-Polling place in the past	6-8 VOTE* <i>19 Registered</i> <i>10 Voted</i>	-Assists residents in acquiring absentee ballots -Will drive residents to a polling place	7%-9%*	WEEKLY MEETING



a strict method of handling absentee ballots in nursing homes, where either a bipartisan team must deliver the ballot to the voter in person, witness filling it out, and collect it. One home also circulated petitions to its residents on particular issues, which could be a cause for concern if some of the residents were mentally incompetent. The home care service administrator (D), however, did say that nurses were allowed to help their clients actually fill out the ballots. Seniors in their own homes can receive and return absentee ballots by mail, and, under Missouri law, are allowed to have any individual they choose help them complete the ballot. However, with in-home nurses playing such a pivotal role in the lives of these seniors, it could be problematic if the nurse is "helping" more than the client desires. There has been no evidence discovered of this occurring thus far.

"Politically active residents" is simply a percentage (self-reported by nursing home administration) of how many of their residents they consider to be "politically active".

The final category, "organized current events activities" is the compilation of the answers by nursing home administration to questions regarding any events the home plans to keep seniors informed about the news (including political news). In the homes that had such activities, the current event activity was a weekly meeting, usually over coffee or snacks where residents would listen to the radio or watch television news together, or discuss articles they read in the paper.

## Discussion

As a result of this study, several discussion items should be made regarding the voting of seniors in Boone County and the interaction among nursing home residents and administration, and several issues were brought to light that require further research. While there was no evidence of absentee ballot manipulation in Boone County assisted care facilities, the question of whether this occurs generally in Missouri or elsewhere is still open. Seniors in Boone County assisted care facilities have a lower rate of voter turnout than other Missouri seniors. However, this is likely due to fact that costs related to voting (getting to the polls, staying abreast of current political issues, etc.) can be higher for seniors in assisted care facilities than those who are not.

With regard to the laws and statutes relevant to voting in nursing home, Missouri has more restrictions in this area than some other states. However, within the context of nursing home regulation, while there are methods in place to ensure senior residents have access to social and religious activities, there is no such protection for continued political participation. Also, many involved in nursing home administration in Boone County do not really spend much time thinking about the political activity of residents, as several administrators and activity directors pointed out during interviews. This, they claim, is due mostly to the fact that nursing home staff and administration are far more concerned with maintaining the health of residents than worrying about their political activity. They also claim that, at this point in their lives, many of their residents no longer care to be politically active. This assessment is probably due to the fact that those in nursing home are usually less physically and mentally healthy than those outside of homes, thus decreasing their ability to perform political activities. A final conclusion is that, in those homes where questionable activities involving the political participation of residents and their interaction regarding these interactions with nursing home staff and administration exist, those members of the staff and administration involved usually did not see any problems with their activities, and viewed themselves as "helping" their residents or clients.

One area that definitely needs further research is the issue of voting and competency as it relates to seniors, especially those in nursing homes, who are likely at a higher risk than other seniors for voter fraud. With the aging baby boomers soon to reach the age where they will likely enter assisted care facilities en masse, it is important to understand what role competency does and should play in senior voting (Gimpel et al. 2004). Another area for further research is the use of absentee ballots in nursing homes. A national survey should be conducted to determine how the laws regulating the distribution and collection of absentee ballots, especially to nursing homes, compare to each other, as well as their effectiveness. A study of this nature could also be used as a springboard for a study to assess how usage of absentee ballots relate to changes in the level of voter fraud, especially among the elderly.

The immediate follow-up to this study will be a statewide survey of a sample of the more than 400 assisted care facilities in Missouri. This survey will provide a more concrete data source of information related to the political interaction among elderly residents, nursing home administration, and election officials across the state. The survey will ask many of the same questions that were asked in the in-depth interviews for this project, but will be formatted in a closed or limited choice survey with some open-ended questions, as opposed to all open-ended questions.

Additionally, another survey, this one of senior voters in Missouri (particularly those in nursing homes) will be sent out to determine the voting habits of these voters. In particular, we hope to discover how these seniors are voting in regards to their methods of voting (absentee or at the polls), as well as how many seniors with competency limitations are actively voting.

There were several limitations to this study that have implication for the findings. First, with three institutions of higher education Boone County is not a typical county. Residents tend to have higher incomes and are better educated. The county serves as a retirement haven for older individuals, and seniors 55 and older comprise 21.4% of the adult population in the county. Also, Boone County arguably has more journalists per capita than any other place in the world, being home to the Missouri School of Journalism, which probably has an effect on the level of corruption in the county. The data on voter turnout as self-reported by nursing home administration was likely to be different than the information provided by the Boone County Clerk, since that information only went up to the November 2002 election, and nursing home administrators were recalling the voter turnout in 2003 local elections. Finally, since there has been so little study done on what competency is, exactly, and how it relates to other aspects of political life, there is a need to develop a theoretical basis for future study.

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## Interview Questions

### Questions for Activities Directors

- What are your responsibilities as an activity director?
- How long have you been in your current position? Worked in this profession? How did you get into this field?
- What types of activities do you schedule for residents? Which of these occur on a regular basis?
- How many residents are usually involved in these activities?
- What types of activities/opportunities are there for residents to have access to news and other information about current events?
- What types of interactions do you have with political parties, candidates, interest groups, or other groups in regards to these, or any other activities in the home?
- How many (or what percentage) of your residents would you consider to be politically active?
- In what types of political activities are they involved, and to what extent?
- How many of your residents vote, and how do they do so?
- What type of assistance do they receive in regards to registration or voting, who provides this assistance, and how is it provided?
- What types of interactions do you have with the County Clerk in regards to the political participation and/or voting of your residents?
- Describe the discussions you have with the families of residents in regards to the political participation of the resident?
- Have there ever been any incidents of family members not wanting a resident to vote, despite the resident's desire to do so? Please describe.
- Have there ever been any instances of a family member trying to get a resident to vote when they may not be cognitively or physically able to do so?

### Additional Questions for Nursing Home Directors

- What types of interactions or participation do you have with nursing home organizations?
- What are the political activities of these organizations?
- How are you involved personally with these organizations?
- At industry conferences, what types of discussions are there related to political or legislative issues?
- What types of activities are planned in regards to these issues?
- Do you consider yourself politically active?
- What issues are important to you?
- How do you deal with these issues in regards to your position at the home or in regards to the nursing home organizations?

### Questions for Both

- Is your facility a for-profit or non-profit home?
- How many residents are in your home?
- What is the average level of cognitive ability of the residents?
- At what level of cognitive impairment are residents no longer able to participate in political activities such as voting, and how many of your residents fall into this category?



## Crystal Buckner

### Impact of Creep Feeding on Growth, Subsequent Performance, and Plasma Parameters

**James Williams, PhD, Mentor**  
**Department of Animal Sciences**



**C**rystal Buckner is a senior from Rolla, MO majoring in Animal Science. She is a recipient of several scholarships including Elyzabeth Schell, Texas Livestock & Producers and the MFA Foundation award. She is a member of the Alpha Zeta Honorary Agriculture Fraternity and a previous member of the MU Inter-collegiate Livestock and Meats judging teams. Upon graduation, she will spend the fall participating in the University of Nebraska-Lincoln's Feedlot Management Specialization Internship program. Immediately following her internship, Crystal intends to enter a graduate program in ruminant nutrition.

## Introduction

Increasing weaning weights is always a common objective for cattle producers. Feeding calves a high quality, high protein feed while still nursing their mother cows improves final weaning weights. Previous research (Rasby et al., 1991; Faulkner et al., 1994) observed that creep fed calves are significantly heavier at weaning than non-creep fed calves. It has also been shown that previous nutrition impacts subsequent performance of steers in the feedlot. After adaptation to a high concentrate diet in the feedlot, nutritionally restricted calves have greater daily gains than creep fed calves (Carstens et al., 1991).

Glucose and urea nitrogen are plasma constituents that can be used in evaluating the nutritional status of growing steers. During periods of restricted growth, plasma concentrations of insulin, glucose, and urea nitrogen are reduced, but these concentrations increase with refeeding (Blum et al., 1985). Plasma urea nitrogen (PUN) is an indication of protein status in the beef steer. Preston et al. (1965) stated 10 mg/ 100 ml was an acceptable level of urea contained within blood of beef cattle fed adequate dietary protein. Additionally, urea nitrogen indicates the degree of nitrogen (which is a direct correlation to protein) within the body that is not properly utilized and recycled. Glucose promotes nitrogen balance within the body. As the infusion level of glucose increases, the blood urea nitrogen level decreases (Eskeland et al., 1984).

Corn distiller's dry grain with solubles (DDGS) has been found to be an excellent protein and energy source in ruminant diets (Lodge et al., 1997; Al-Suwaiegh et al., 2002). DDGS is higher in rumen undegraded protein (RUP) and fat content than soybean meal (SBM) when fed to growing steers (Waller et al., 1980). Ham et al. (1994) reported that cattle gained faster and more efficiently when fed DDGS as compared to feeding dry rolled corn. With this in mind, we wanted to evaluate soybean meal and DDGS as protein sources for a creep ration as well as their effects on subsequent performance and plasma concentrations of glucose and urea nitrogen in steers.

## Methods

Thirty-six crossbred steer calves (159.9kg) with dams were used in a randomized block design experiment. This study was divided into two distinct phases: creep feeding and feedlot phases. Steers were randomly assigned to one of three treatments for the 68-day creep feeding phase. Treatments consisted of: 1) non-creep fed control (Control) or creep-fed with 2) DDGS or 3) SBM as the protein source. Diets contained these protein sources along with soybean hulls and cracked corn in a 2:1 ratio, respectively (Table 1). The creep-fed calves were individually fed the DDGS and SBM rations daily at 0700 hours and allowed 30 minutes to consume the creep feed; non-creep fed calves received no ration.

Steers were weaned at the end of the creep feeding phase and placed in six drylot pens. Each drylot contained six steers with two pens per treatment. The steers remained on the same treatments for the receiving and growing periods as they were during the creep feeding phase. The feedlot phase was divided into three periods: a 56-day receiving, a 56-day growing, and a 73-day finishing period. All diets consisted of fescue hay, soybean hulls, corn, and one of two protein sources (Table 2). Supplemental protein source remained the same during the receiving and growing periods for the SBM and DDGS treatments as provided during the creep feeding phase, while the control steers were given SBM as their protein source. All steers were switched to a whole shelled corn, tall fescue hay, and soybean meal/urea diet during the finishing period (last



73 days). During the creep feeding phase, weights were taken at days 0 and 68. During the feedlot phase, weights were taken at intermittent periods at days 0, 28, 56, 112, and 168. Blood samples were also taken at days 0, 14, 28, 56, and 112.

Blood samples were taken by venipuncture from the jugular vein using an 18 gauge 1½ inch VACUTAINER® blood collection needles and collected in 10mL purple-top Ethylenediaminetetra acetate (EDTA) VACUTAINER™ blood collection vials. Samples were transported on ice, centrifuged within three hours at 2,200 X g for 23 minutes. Glucose and PUN concentrations were analyzed colorimetrically using a Linear™ Enzymatic Glucose Kit and PUN Kit, respectively. Finally, the data were analyzed as a split plot design using GLM procedures of SAS.

**Table 1.**  
**Creep Feed Diets**  
**% of DM**

	1 <sup>a</sup>		2	
	SBM	DDGS	SBM	DDGS
Crack Corn	28.48	22.41	27.60	17.66
Soybean hulls	57.70	45.35	56.58	47.16
DDGS		31.40		34.44
SBM	12.98		15.11	
Limestone	0.84	0.84	0.72	0.74
Trace mineral <sup>b</sup>				

<sup>a</sup> Two creepfeed diets were fed, one for each half of the creep feeding phase

<sup>b</sup> A mineral block was provided to each pasture.

**Table 2.**  
**Feedlot Diets**  
**% of DM**

	Phase 1 <sup>a</sup>		Phase 2		Phase 3
	SBM	DDGS	SBM	DDGS	
Fescue hay	26.74	25.9	9.78	9.88	4.4
Soybean hulls	21.05	20.39	13.87	14.01	6.96
Shell corn			59.67	60.26	78.28
Crack corn	39.35	31.37	7.57		7.21
SBM	10.94		7.26		1.2
DDGS		20.37		13.66	
Urea	0.41	0.8	0.44	0.75	0.81
Limestone	0.67	0.81	1.01	1.02	0.82
TM <sup>b</sup>	0.16	0.16	0.19	0.19	0.14
Rumensin	0.02	0.02	0.02	0.02	0.01
Vitamin A,D <sup>c</sup>	0.12	0.12	0.11	0.11	0.1
Vitamin E <sup>d</sup>	0.12	0.12	0.09	0.1	0.07

<sup>a</sup> The feedlot phase was divided into 3 phases with different diets.

<sup>b</sup> Trace mineral consisted of 10% Fe min., 10%Mn min., 10% Zn min., 2% Cu min., 500 ppm Co, 1000ppmI, 1500 ppm Se.

<sup>c</sup> Contained 1,021,500 IU/lb Vitamin A and 180,000 IU/lb Vitamin D.

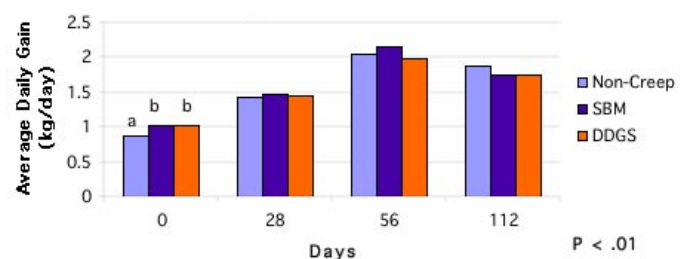
<sup>d</sup> Contained 20,000 IU/lb Vitamin E.

## Results and Discussion

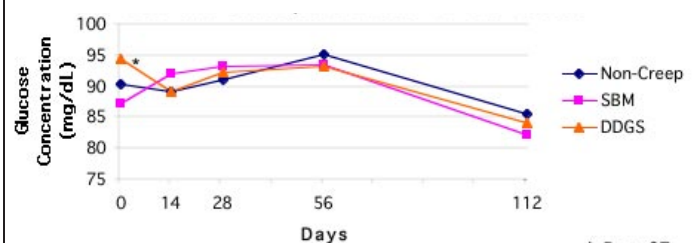
During the creep feeding phase, the creep-fed calves had greater average daily gain (ADG) than those calves that were not creep fed ( $P < .01$ ) as shown in Figure 1. This finding agrees with previous reports (Rasby et al., 1991; Faulkner et al., 1994) that showed creep feeding for 68 days enhanced weaning weights of calves. This improvement in weaning weights of calves is attributed to the additional protein and energy in SBM and DDGS provided in the creep ration relative to the forage and milk from their dams. Additionally, there were no differences in overall ADG among treatments during the feedlot phase. These findings suggest that previous nutrition of calves prior to weaning had no effects on subsequent performance. This was attributed to forage quality of the pasture being adequate so that nutritional supply was not restricted to non-creep fed calves. Therefore, non-creep fed calves gained as much weight per day as their creep-fed counterparts in the feedlot.

Figures 2 and 3 depict plasma glucose and urea nitrogen concentrations in steers during the feedlot phase. Glucose concentrations were greater for DDGS fed calves than SBM calves at weaning, or day 0 ( $P < .07$ ). However, all calves were similar in plasma glucose concentrations at days 14, 28, 56, and 112. PUN concentrations were greater for non-creep fed calves than creep-fed calves at day 14 ( $P < .01$ ). These differences in PUN concentrations were maintained between non-creep fed calves and DDGS calves at day 28 ( $P = .07$ ). It may be inferred that non-creep fed calves did not utilize nitrogen as well as the creep-fed calves. Although the non-creep fed calves performed as well as the creep fed calves, they may have not been as efficient in utilizing nitrogen as they adapted to the high concentrated diet. Furthermore, plasma glucose and PUN concentrations were not affected by treatment and continued to decrease after 28 days.

**Figure 1**  
**Average Daily Gain as Affected by Creep-fed Diets**  
**and Subsequent Effects in the Feedlot**

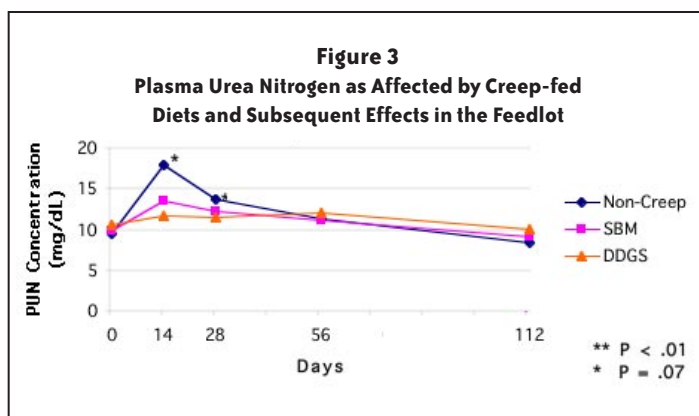


**Figure 2**  
**Glucose Concentration as Affected by Creep-fed**  
**Diets and Subsequent Effects in the Feedlot**



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## Conclusion

Creep feeding calves improved ADG prior to weaning. The protein sources (SBM and DDGS) and creep feeding did not affect subsequent performance of steers during the feedlot phase. Creep feeding had no effect on glucose concentrations, but during the first 28 days of the feedlot phase, PUN concentrations were reduced in creep fed calves due to lower nitrogen wastage in the body. After 28 days in the feedlot phase, glucose and PUN concentrations were not affected by creep feeding.

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## 2003-2004 Research Topics



Scholar	Major	Title	Mentor
Kimberly Adams	Political Science/ Broadcast Journalism	Help! I've Voted But I Can't Get Up! Competency, Electoral Participation, and Assisted Care Living	James Endersby Betty Winfield
Jamie Atkinson	Theatre	Daughters of a Lie: A Study of Mammy and Jezebel	Clyde Ruffin
Michelle Barton	Industrial Engineering	Can You Get There From Here? Overcoming Ground Transportation Weaknesses	Cerry Klein
Crystal Buckner	Animal Sciences	Impact of Creep Feeding on Growth, Subsequent Performance, and Plasma Parameters	Jim Williams
Samuel Cole	Nutritional Sciences	The Effects of ER-beta Ligands on IGF-I Signaling Pathways in the Human Colon Cancer Cell Line, CaCO-2	Ruth MacDonald
Michael Collins	Physical Therapy	The Effects of 8-week Low-Intensity Exercise for People with Arthritis	Marian Minor
Kerri (Stockton) Cornine	Horticulture	A Proposal for the Development of Historic Maplewood Gardens-An Interpretive Design of the Victorian Era	Mary Ann Gowdy
Sarah Evola	English & Psychology	Performing the Cycle of Life and Death: Sylvia Plath's Model of Female Suicide	Frances Dickey
Eric Galoskowsky	Fisheries & Wildlife/Forestry	A Spatial and Temporal Analysis of White-Tailed Deer ( <i>Odocoileus virginianus</i> ) in Relation to Land Use and Cover Type in Columbia, Missouri	Charles Nilon
Dana Givens	Human Development & Family Studies	Parental Conformity and How Parent's Respond to Children's Emotional Distress	Duane Rudy
Brian Johnson	Marketing	Diversity in Corporations and Business Education	Allen Bluedorn
Tiffany Julian	Sociology	Moral Rhetoric in the Kansas Science Standards Controversy	Wayne Brekhuis
Ashley Overstreet	English	Domestic Violence in U.S. Born Women's Short Stories 1994-2003	Elaine Lawless
Angela Pashia	Anthropology	A Cross-Cultural Examination of Religious Skepticism	Reed Wadley
Nikki Strong	Peace Studies/History	Reaching a Lasting Peace: Senator John C. Danforth's Role as a Mediator in the Sudanese Peace Process	Abdullahi Ibrahim
Sara Vidito	Spanish	Vocabulary and Narrative in Story Retell: Do Very Low Birthweight Children Differ from Their Normal Birthweight Peers?	Linda Day
Tamar Wallace	Marketing/Psychology	Children's Representations of Boundary Dissolution in Family Drawings	Kim Leon
Byron Whitmore	International Business/ Finance	Correlation Between the Risks Taken in Everyday Life and Financial Risks: Can Bungee Jumpers Handle Internet Stocks?	Cynthia McDonald



## 2003-2004 McNair Scholars



**Back row:** Vicki Curby (Director), Steven Richardson (staff), Eric Galoskowsky, Samuel Cole,  
Michael Collins, Keith Davis (guest), Brian Johnson

**Second row:** NaTashua Davis (Assistant Director), Byron Whitmore, Michelle Barton, Angela Pashia,  
Crystal Buckner, Kerri Stockton Cornine, Tiffany Julian, Tamar Wallace

**First row:** Ashley Overstreet, Kimberly Adams, Nikki Strong, Dana Givens, Sara Vidito, Antonia Sisneros (guest), Jamie Atkinson  
(Not pictured) Sara Evola, Darlene Dixon (Program Assistant), Jeremy Bloss (Student Services Advisor)

## Featured Scholar



### Michael L. Barnett, Ph.D.



**M**y path to a Ph.D. has been long and winding, but it was paved by my McNair Scholars Program experience during the summer of 1991. Actually, it is incorrect to say that my McNair Scholars experience was limited to the summer of 1991. I participated in a variety of McNair activities in the fall of 1990 and spring of 1991, but conducted, wrote and presented my research that summer. The following fall I participated in the International Student Exchange Program. Then, upon my return to MU in the summer of 1992, I continued with some revisions of my research paper. That fall my mentor, Finance Professor Dr. John Stowe, presented our research paper in various college seminars at MU, which meant that many of my professors got to know me and began drawing me into class discussions – a

relative novelty for me. Dr. Stowe also submitted our paper to the 1993 Southwestern Finance Association Meeting, to which it was accepted. Immediately, I began receiving correspondence that referred to me as “Prof. Barnett” and “Dr. Barnett” – setting the stage for the inevitable, even though it would be more than a decade before I actually earned these titles.

After I completed my undergraduate degree in December of 1992, I had no desire to go immediately into graduate school. Instead, I wanted to be a police officer. Throughout my years at Mizzou, I was one of those pesky “cadets” everyone loved to hate. I very much enjoyed the experience, and wanted to pursue a career in law enforcement. The selection process for police officers is lengthy. However, along the way, I was also offered the chance to attend Officer Training School in the US Air Force. I chose that route and became a lieutenant, assigned to McConnell Air Force Base in Wichita, Kansas. McConnell is a small base, so I was able to be very involved in its management and leadership from the start. While assigned there, I also attended night classes and earned an M.B.A. In my leadership positions, I had the chance to apply the management concepts I learned in my M.B.A classes. As a result, I developed a passion for management. So, after my 4-year commitment concluded, I decided to leave the military and enroll in a Ph.D. program in management. That is where my McNair experience came back into play.

The acceptance rate into top-notch business school Ph.D. programs is perhaps around 5 percent. Without my McNair experience, not only would the thought of applying to a Ph.D. program have never entered my mind, but I am also convinced that I would have fallen into the unaccepted 95 percent. But, thanks to my McNair experience, I was a demonstrated scholar, research paper and presentations in hand. I also was able to obtain a reference from my mentor, John Stowe. He had direct knowledge of my pertinent skills that he could clearly convey to selection committees. Moreover, I had the insight to write an effective essay that demonstrated my grasp of the purpose and demands of a Ph.D. program. Thanks to all this, I was admitted to several high-caliber Ph.D. programs, and accepted the (fully funded!) offer to attend the Stern School of Business at New York University. Some six and a half years later, I earned my Ph.D., and now I am an assistant professor at the University of South Florida, in the midst of another six year quest, this time for tenure. So soak up all that the McNair program has to offer – you never know when you will come to rely on it!







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