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Cloning in young adult fiction

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Abstract

The purpose of this study was to discover the issues raised about human cloning in young adult fiction. This study determined the themes found in the young adult fiction selected and if those themes reflected issues about human cloning. The questions asked in the study were: 1. Does young adult fiction confront the complexity of ethical issues about human cloning? 2. Do the plots and characters in young adult fiction about cloning provide substance to provoke reader response to the ethical controversies that surround cloning? A thematic analysis was conducted. The researcher read each book and recorded themes that were present. This list of preliminary themes was grouped to create six final themes: Utilitarianism, Exceptionality of Clones, Individuality, The Fight for or Against Control, Dislike or Hatred of Clones, and Justification of Cloning. Both print and electronic resources were used to gather titles of young adult fiction books that dealt with human cloning. This list of titles was compared with WorldCat search results showing the number of OCLC member libraries owning the books. Those books owned by more than 200 libraries were considered. Nineteen books were chosen. Eight titles were removed from the list which left eleven books eligible for the study. The study found that young adult fiction about human cloning did address the ethical issues about the topic that were reported in the news or discussed in research. The books in the study addressed the complexity of the issues to varying degrees. Books that included human cloning as a main part of the story discussed the issues and the complexity of those issues with more detail than those books where human cloning was just an incidental part of the storyline.

CLONING IN YOUNG ADULT FICTION

A Graduate Research Paper

Submitted to the

Division of School Library Studies

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In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

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by

Jennifer L. Kehoe

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Graduate Faculty Reader

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CHAPTER 1

INTRODUCTION

“Technological change and human evolution are inextricably entwined; humanity must come to terms with, rather than escape, the consequences of modern science.”

-- Thomas J. Morrissey

Genetic Engineering

Barber (2002) described how genetic engineering uses what is known about genes to address a variety of problems. Genes are part of DNA, and the technology used for the manipulation of DNA is called recombinant DNA technology. Genetic engineering has been used in many ways. Genetically altered bacteria are used to help break down products of waste. Genetic engineering has also been used to help solve crimes through analyzing DNA, to locate chromosomes of genetic disorders, to make medicine for some genetic diseases, to help protect plants from disease and pests, and also to help prevent some foods from spoiling from the time they are harvested to when they are sold (Barber, 2002).

Cloning

Perhaps the most controversial of all genetic technology is cloning. Cloning is “the production of genetically identical cells or complete organisms as a result of descent from a single individual” (Barber, 2002, p. 137). Barber reports that cloning occurs among bacteria, yeast, and other asexually reproducing species as well as in some species of plants and animals, such as the flatworm. Identical multiple births in humans is another example of cloning happening naturally. In humans, a fertilized egg divides and produces individuals who are genetically the same.

Klotzko (2006) listed several developments in cloning research history. For example, in 1938 Hans Speman suggested transferring a nucleus from one cell into the egg of another. Robert Briggs and Thomas King were able to clone tadpoles by the process of nuclear transfer. In the 1960s John Gurdon transferred nuclei from differentiated cells of frogs to eggs of frogs that had the nucleus removed. They did not mature past the tadpole stage. In 1984, Steen Willadsen cloned lambs. In 1987 Randall Prather cloned a cow. In 1995 researchers from the Roslin Institute cloned sheep from cells derived from nine-day-old embryos (Klotzko, 2006).

In 1996, researchers from the Roslin Institute cloned a sheep that they named Dolly (Klotzko, 2006). Kaebnick & Murray (2001) reported that researchers used a mammary gland cell from an adult sheep. For this procedure, they removed the genetic material from the nucleus of an unfertilized egg in order to replace it with a new nucleus. The new egg and the adult somatic cell from a mammary gland were given an electric shock to make them become an embryo. This also caused the embryo to begin dividing. After Dolly, mice and other animals were reported to have been cloned using the nuclear transfer process (Kaebnick & Murray, 2001; Klotzko, 2006).

Cloning of Humans

Moss (2009) reported on Panayiotis Zavos' claims of human cloning. In 2004, Panayiotis Zavos claimed that he implanted a cloned embryo into a woman but this procedure was unsuccessful. In 2009, Zavos claimed that he cloned fourteen embryos. Eleven of those were implanted into four women. These pregnancies were also unsuccessful. Azim Surani, a professor at Cambridge University has said, "If true, Zavos has again failed to observe the universally accepted ban on human cloning, which was

agreed because most of the resulting embryos from such animal experiments are abnormal” (Moss, 2009, p. 10). Kahn (2004) reported that Boisselier, head of Clonaid, announced that a South African couple would be the parents of a cloned baby girl. Clonaid, a reproduction company, claimed to have cloned two babies but has not published any evidence. Boisselier is a member of the Raelians, who believe that humans were created by aliens through cloning.

In January 2008, President Bush asked Congress to ban human cloning (Stolberg, 2008). Crawford (2009) reported that President Obama put an end to funding limits for embryonic stem cell research. He has been quoted as saying, “We cannot tolerate misuse or abuse. And we will ensure that our government never opens the door to the use of cloning for human reproduction” (Crawford, 2009, p. 15).

Kolata (2004) reported that Dr. Woo Suk Hwang and Dr. Shin Yung Moon of Seoul National University announced in February 2004 that they had created human embryos through cloning, and extracted embryonic stem cells. Dr. Leon R. Kass, chairman of the President’s Council on Bioethics, responded:

The age of human cloning has apparently arrived: today, cloned blastocysts for research, tomorrow cloned blastocysts for babymaking. In my opinion, and that of the majority of the Council, the only way to prevent this from happening here is for Congress to enact a comprehensive ban or moratorium on all human cloning. (Kolata, 2004, p. 1)

Younge (2005) reported that Gerald Schattan, an American researcher, said that he would no longer work with Woo-Suk Hwang. It was alleged that Hwang used eggs from a junior scientist, an act that suggests unfair coercion. Sang-Hun & Wade (2005) reported that Hwang resigned after an investigation showed his claim that he created stem cell colonies from eleven patients was false. His claims of cloning a dog and a human cell

were also under investigation (Sang-Hun & Wade, 2005). McManus (2009) reported that Dr. James Thomson, who invented embryonic stem cell research has said, “If human embryonic stem cell research does not make you at least a little bit uncomfortable, you have not thought about it enough” (p. B03). Thomson did further research and now uses induced pluripotent cells (iPS) from skin cells instead of embryonic stem cells (McManus, 2009).

Therapeutic and Reproductive Cloning

Kaebnick & Murray (2001) discussed the distinction between therapeutic cloning and reproductive cloning. In therapeutic cloning, the embryo would not be implanted into a uterus, but would use a nuclear transfer process instead. This type of nuclear transfer cloning could possibly create tissue lines that could be used to repair or replace damaged tissue or to create human embryos so that embryonic stem cells could be used to create replacement tissues. If the somatic cell came from the person who needed the tissue, a transplant could be made without a problem with rejection. Human embryo splitting could be used to make reserve embryos that could be available for genetic testing or transplant therapies that use stem cells.

Kaebnick & Murray (2001) stated how, in reproductive cloning, human embryo splitting could be used to help infertile couples where the woman’s eggs are removed, artificially inseminated, and then transferred to her uterus. Human embryo splitting could increase the number of embryos without the female having to go through multiple egg extractions. Other situations could include cloning to produce certain genetic traits or cloning to create a source for tissue or organ transplant. Other situations could include cloning a famous person or cloning to replace a lost child, though an exact replica would

not be created. "Clone and cloned could not be identical for the simple reason that the clone could not be raised in an environment identical to that in which the original was raised" (p. 54). Different environments might lead to physical differences (Kaebnick & Murray, 2001). Kolata (1997/2000) reported that Dr. Kevin Fitzgerald who, a Jesuit priest and a geneticist at Loyola University in Maywood, Illinois stated:

While a clone would be an identical, but much younger, twin of the adult, people are more than a sum of their genes. A clone of a human being would have a different environment than the person whose DNA it carries and so would have to be a different person. It would even have a different soul. (p. 89)

Ian Wilmut argued that cloning cannot make an identical person. He states that, "genetic identity is not the same as personal identity, and selves, unlike cells, cannot be cloned" (Wilmut & Highfield, 2006, p.41).

Issues about Cloning

Kaebnick & Murray (2001) discussed medical and scientific concerns. Human cloning could result in babies with deformities. Already, cloned animals have experienced problems in the heart and lungs as well as other organs (Kaebnick & Murray, 2001). Shorter life spans may occur if clones have the same biological age as the cell from which they were cloned (Barber, 2002). A sociological concern about cloning has been the worry that males will become unnecessary for reproduction (Post, 1997/2000).

Concern has arisen about using human clones as organ donors, where the clone becomes an object (Post, 1997/2000). Many who think of embryos as human life have considered therapeutic cloning research controversial because life is being created only for research purposes (Pollack, 2004). Some critics have stated that any type of cloning takes value away from the qualities of humans and risks clones being treated as products (Reich, 1998).

Anaja Ahuja (2004) quoted Ian Wilmut, the creator of Dolly as saying,

I have a grandson who is two months old. To think of a blastocyst as equivalent to a foetus or my newborn grandson is just absurd. The key aspect of the development is the ability to be aware, to think and to feel, and so on. A blastocyst does not have those attributes, and that's why I would draw the line there.

I personally wouldn't like to work with foetal cells. Depending on their stage, there could possibly be consciousness. Don't ask me where the line is because I don't know, but I do know that six or seven days, when most blastocysts are taken, is well before the line (p. 8).

Miller (2000) has reported that the idea of patenting procedures is controversial and some say that these processes should not be patented because they deal with human life. Concerns have been raised that commercial issues could take precedence over ethical issues in the private companies (Miller, 2000). Some researchers have claimed that with the work being done in South Korea, the U.S. could possibly fall behind other countries in an area that could be a "major new medical field" (Pollack, 2004).

Controversial Issues in Young Adult Literature.

Current news issues become topics of young adult literature. Controversial topics in young adult literature have included homosexuality, madness, mental torture, serial killing, rape, murder, AIDS, and child abuse (Brown & DiMarzo, 1998; Cooper & Zvirin, 1998). Karen Wojtyla, an editor at Bantam Doubleday opined that young adult writers react to the current events (Cooper & Zvirin, 1998).

Problem Statement

The ethical issues involved in cloning humans are controversial and may not be fully discussed in young adult fiction.

Research Questions

1. Does young adult fiction confront the complexity of ethical issues about human cloning?
2. Do the plots and characters in young adult fiction about cloning provide substance to provoke reader response to the ethical controversies that surround cloning?

Purpose Statement

The purpose of this study was to discover the issues raised about cloning in young adult fiction. For the purposes of this study, the focus included young adult fiction that discusses the cloning of humans.

Assumptions

1. Books for young adults would discuss cloning.
2. Young adults could be influenced by what they read.

Limitations

The young adult fiction in this study included only books published in 1997 or later. Since only books published in the United States were analyzed, the ideas and values of other cultures may not be reflected in this study. The fiction read for this study included young adult fiction and adult fiction recommended for young adults in a review from a professional review source (for example *Booklist*, *School Library Journal*, *KLIATT*). The list of book titles found was checked against WorldCat to identify the most widely held titles by OCLC member libraries to determine which books were more readily available to readers.

Definitions

Blastocyst – “A stage in the development of humans and other mammals. The zygote that results from the fertilization of the egg cell divides and develops into a hollow ball of cells. The wall in one part of this ball is thicker and forms a mass of cells. These cells will eventually become the embryo while the placenta will develop from the remaining ones” (Indge, 1997, p. 32).

Cloning – “The production of genetically identical cells or complete organisms as a result of descent from a single individual” (Barber, 2002, p. 137).

Cytoplasm – “The contents of a cell outside of its nucleus” (Indge, 1997, p. 66)

Embryo – “The developing human is designated as an embryo up to the beginning of the third month of pregnancy. Subsequently, when the body shape is essentially formed, the term fetus is used” (King & Stansfield, 1997, p. 12).

Embryo splitting – “This is taking an embryo when it consists of only a few cells and splitting it into smaller bundles of cells” (Bains, 1993, p. 199)

Eugenics – “The science of selective breeding to achieve a predetermined set of genetic characteristics” (Steinberg & Cosloy, 2001, p. 75)

Genes – “An ordered string of DNA nucleotides that we inherit from our parents. Each gene has a unique location on a particular chromosome and acts as the blueprint for producing a specific protein” (Messina, 2000, p. 10).

Genetic engineering – “The manipulation of genes through the use of recombinant DNA techniques for the purpose of modifying the function of a gene or genes for a specific purpose” (Steinberg & Cosloy, 2001, p. 92).

Massify – “to form into a mass; to popularize for the masses” (Massify, n.d.)

Nuclear transfer – “The nucleus of one egg is transferred to another” (Barber, 2002, p. 138).

Nucleus – “A large organelle that carries a cell’s genetic material and is responsible for the control of its activities” (Indge, 1997, p. 171).

Recombinant DNA technology – “genetic material from one organism is inserted into another” (Barber, 2002, p. 135)

Stem Cell – “Any cell that, in a tissue, is itself immature but gives rise, through cell division, to cells that become the mature form of the cells that characterize the tissue” (Steinberg & Cosloy, 2001, p. 192)

Young adult fiction - For the purposes of this study, young adult fiction will be defined as fiction that a reader ages 12-18 (approx. grades 6-12) would choose to read (Book Review Code, 2003, p. 40; Nilsen & Donelson, 2001, p. 3).

Significance

Human cloning is controversial. Many issues concerning human cloning can be found in the news. This study determined if the patterns and themes found in the selected young adult literature reflected the discussion of controversies surrounding the subject. Because some young adults read literature and form opinions not only on the book itself but also on the topics covered in the books, this study sought to determine if the controversies and issues about human cloning in young adult fiction reflected concerns brought forth in reports about human cloning.

The patterns and themes found within the literature analyzed can be used by teacher librarians as books that deal with human cloning are added to the collection.

There are many controversial topics in young adult fiction, which are often the subject of complaints and censorship.

Fiction books that dealt with current topics or issues about human cloning may be book talked or used in discussion groups. By pointing out the issues presented in each story and how well they are discussed in those stories, this study can be useful to teacher librarians promoting science fiction books that deal with human cloning.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Research relevant to this study examined attitudes concerning cloning, the portrayal of technology and human reproduction in science fiction, science fiction for young adults, and controversy in young adult literature.

Attitudes about Cloning

Balas and Hariharan (1998) reported on the attitudes of Midwestern citizens concerning cloning, focusing on people's ethical, moral, and political perspectives. One hundred fifty-six people completed the survey - 41.9% were male and 55.5% were female. Of the 96% reporting, participants' ages ranged from 18-65+. Affiliation with a college or university was reported by 76.3% of respondents. Balas and Hariharan noted that of the participants who went to college, 37 different college degrees were represented and 25 different majors. College attendance ranged from the completion of some college level courses to the completion of a doctorate degree. Of the participants, only 0.6% were educated through 11th grade and 9.0% of participants had ended their formal education at 12th grade.

This study used both qualitative and quantitative methods. The study "examined the relationships between demographics and knowledge of cloning, attitudes toward cloning, and sources of information on cloning/cloning issues" (Balas & Hariharan, 1998, p. 4). The study presented questions or statements with a multiple category response; there was also one free response question. Eight of the participants completed a follow-up interview. The researchers chose these people from those participants who provided their names and phone numbers to be contacted for an interview.

The study employed a five-point Likert like scale. Balas and Hariharan (1998) explain that the responses of Strongly Disagree and Disagree were collapsed as well as the responses for the Agree and Strongly Agree categories. Responses were spread evenly between disagree (35%), neutral (34%) and agree (34%) to the statement “I am optimistic about where people are heading with recent advances in cloning technology” (p. 6). Twenty-six percent disagreed, 28% were neutral, and 46% agreed with the statement “Cloning will benefit society” (p. 6). Eighteen percent disagreed, 21% were neutral, and 60% of the participants agreed with the statement, “I am concerned about recent advances in cloning technology” (p. 6). Forty-one percent disagreed, 21% were neutral, and 38% agreed with the statement “Cloning is equivalent to playing God” (p. 7). Responses were evenly spread for the statement “I would use a product made by cloning” with 33% disagreeing, 33% neutral, and 33% agreeing (p. 7).

In the second part of the survey, answer choices included yes, no, it depends, and unsure. When respondents were asked if research should be conducted on cloning, 42% said no, 28% said yes, and 30% were unsure. The participants who responded positively to research on cloning were then asked what the research subjects should be. Sixty-nine percent said plants, 55% said animals, 54% said bacteria, 33% said human cells and 9% said humans (Balas & Hariharan, 1998).

Sixty-two percent believed that cloning should be taught in school. Twenty-six percent believed it should not be taught in school and 9% chose the response “it depends.” Among the 62% that believed it should be taught in school, when they thought it should be introduced varied. Nine percent thought it should be introduced in elementary school, 15% in middle school, 31% in high school, and 19% in college. The

same 62% were asked what should be taught about cloning and were given the choices of ethics, facts, techniques, or future. Eighty-one percent said ethics, 74% said facts, 51% said techniques, and 62% said the future of cloning and cloning technology (Balas & Hariharan, 1998).

In follow-up interviews, Balas and Hariharan (1998) found that those who answered to the benefits of cloning discussed the ways it could be used medically, including organ transplants and medical research. The study also showed that control was a major concern about cloning. Concern was voiced about cloning technology being used for destruction. Other concerns included government control of the technology, “the cloning of humans, including the cloning of human armies, and the commercialization of science as in the cloning of dead pets” (p. 9).

Balas and Hariharan (1998) found that gender did not affect attitudes towards cloning but that occupation and education strongly correlated to attitude about the subject. Sixty percent agreed that they were concerned about cloning but 42% didn't think there should be more research. Balas and Hariharan also found that those who did want more research had negative responses to research on animals, human cells and bacteria. They suggest that this may have to do with interview responses for research on bacteria that listed “germ warfare” and “perfecting destruction” (p. 9). They also suggested that a negative response to research on human cells was not surprising with the concerns of “artificially adding people” that were shared (p. 9). The researchers also stated, “The negative attitude toward research on plants could be attributed to lack of awareness of the current uses of cloning technology in the agriculture industry” (p. 9). Balas and Hariharan also pointed out “Perhaps the negative attitude to research on

animals was the result of the media coverage on ‘Dolly’ that served as a focus for respondents’ attitude on cloning in general” (p. 9). Balas and Hariharan (1998) noted that the sample of convenience may have an impact and “may account for the high correlation with occupation and academic association” (pp. 9-10).

A Gallup poll conducted over the phone on May 10-14, 2001 included a national sample of 1,012 American adults who were randomly selected (Carroll, 2001). These adults were 18 years of age and older. The poll showed that approximately 89% of Americans do not want human cloning allowed. It also revealed that 64% of Americans do not think animal cloning should be allowed.

The poll results revealed a correlation between attitudes about cloning with the level of education and the level of income (Carroll, 2001). Respondents with higher education and a higher income expressed support for animal cloning. Female respondents were more likely than men to oppose animal cloning, and those age 65 and older were more likely to oppose animal cloning than those less than 65 years of age. In the same poll, respondents who were not religious were more supportive of animal cloning than those who were more religious (J. Carroll, 2001).

Science Fiction, Technology, and Human Values

Questions concerning technology and human values are not new as a 1970 study of young adult science fiction reveals. Greenlaw (1970) conducted a study to determine the impact of technology on human values as shown in children’s science fiction. She sought to determine if children’s science fiction reflected adult concerns about technology’s impact on values.

In her thematic content analysis on selected books, Greenlaw (1970) chose children's science fiction because she thought it would most likely include themes about technology and how it relates to people's values. The study included science fiction for children ages 9-15 written by 15 authors. Those 15 authors were randomly selected from a group of 39 authors that had been mentioned in *The Elementary School Library Collection* or *Best Books for Children* as children's science fiction authors. The 15 authors chosen were Isaac Asimov and his pseudonyms George Dale and Paul French, Ben Bova, John Christopher, Arthur C. Clarke, Lester del Rey and his pseudonym Ramon Alvarez del Rey, Robert Heinlein and his pseudonym Anson MacDonald, Alexander Key, Madeleine L'Engle, A. M. Lightner, Suzanne Martel, Andre Norton (a pseudonym for Alice Mary Norton), Alan E. Nourse, Hugh Walters, Jay Williams, and Raymond Abrashkin. The 133 books chosen were written between 1945-1970. Nine books were out of print. The study focused on six theme categories: "nuclear power should not be used to invade one's privacy; nuclear power should not be used to restrict one's individualism, automation should not be used to invade one's privacy; automation should not be used to restrict one's individualism, massification of society should not be used to invade one's privacy; massification of society should not be used to restrict one's individualism" (p. 106). A second data instrument explored inclusions of privacy, individualism, and *others*.

Greenlaw (1970) found that 55% of the books included the topic of nuclear power. Ninety-nine percent of the books included the topic of automation. Forty-eight percent of the books included the topic of massification of society. Ninety-eight percent of the books included the value of individualism. Seventy-six percent of the books

included the value of privacy. The study considered a book as a reflection of “adult concern with technology’s impact on human values” if it fit the following criteria: it must “display one or more of the themes measures in the thematic analysis” and/or receive a score of ten inclusions for values and ten for technology (Greenlaw, 1970, p. 114). Forty-three percent of the books had ten inclusions of values and technology. Forty-eight percent of the books included themes and/or inclusions that fulfilled the criteria for the study. Thirty-seven books (28%) contained themes showing concern about the impact of technology on values. Out of those 37 books, 19 (14%) were books with a single theme and 18 books (13%) were books that contained multiple themes. Greenlaw also found that “concern for the impact of technology on human values was present in children’s science fiction in both thematic and specific content” (p. 134). The study also concluded that science fiction books by the chosen authors promoted individualism and privacy as “a continuing need” (p. 134).

Science Fiction

Sullivan (1999) found the quality of young adult science fiction no different from other genres, but surmised that there are “certain kinds of mistakes that may be specific in this genre. The mistakes often have to do with science and technology or with the theoretical possibilities within science fiction itself” (p. 27). Sullivan labeled the mistakes as the “mishandling of technology” or lack of knowledge on a topic (p. 27).

Sullivan (1999) examined science fiction books from *Best Books for Young Adults* by Betty Carter, *Best Books for Senior High Readers* and *Best Books for Junior High Readers* by John Gillespie, *Booklist’s “Top One Hundred Countdown”* from October 15, 1994, and the annual lists found in the March issues of *Booklist*. The books were

published between 1974-1996 with topics covering “the aftermath of World War III to the evolution of telekinetic power to a dystopian near future” (p. 28).

Sullivan (1999) concluded that writers of young adult fiction used “traditional science fiction scenarios, just as the adult writers do, to explore the nature of the human condition by placing people in situations not possible in realistic fiction” (p. 32). He also noted that young adult science fiction writers had examined relevant questions and issues.

Controversy in Young Adult Fiction.

Carroll (1997) sought to find out if young adult literature was still read by high school students, if it offered reading experiences valuable for teens, and if it belonged in the English curriculum in “upper secondary grades” (p. 25). Carroll (1997) discussed the problems teenagers may face and categorized them under the following eight headings: resignation of parents from parenting; teen poverty; sexual activity, teen pregnancy, and sexually transmitted diseases; sexual orientation; drug abuse (including alcohol); abuse, crime, violence, and gangs; hopelessness, depression, and suicide; and thrill seeking and death.

After each of the categories, Carroll includes a small list of typical books. All of the titles chosen, except one, were found in *Books for You: An Annotated Booklist for Senior High Students, 1995 Edition* and/or *High Interest – Easy Reading: An Annotated Booklist for Middle School and High School* (P. S. Carroll, 1997).

Carroll (1997) concluded that young adult literature should be examined carefully to see if the problems and solutions presented are realistic. Carroll goes on to explain that teens look to young adult fiction not only as a source for reading for pleasure but also as a source of information.

Another study investigated what was controversial in young adult literature and how those materials were dealt with in British Columbia. Curry (2001) investigated both the relocation of controversial materials for older children and young adults to other areas of the library as well as the most common reasons why materials for older children and young adults were challenged.

Curry (2001) employed both qualitative and quantitative method in a quantitative analysis was conducted of the placement of controversial fiction titles for older children and young adults in British Columbia (B.C.) public libraries. For this study a list of fiction books for older children and young adults “that had been challenged in school and public libraries in Canada and the United States from 1984 to 1999 was compiled” (p. 29). The titles came from twenty sources. Some of the primary sources included the *American Library Association’s Newsletter*, *Intellectual Freedom and American Libraries*, the book *Fear of Words: Censorship and the Public Libraries of Canada*, *Quill and Quire*, and *Feliciter*. Books for ages ten to seventeen were included. The final list of books contained 220 titles, which were then matched against Outlook, “a union catalog of over three million items that provides interlibrary loan information for B.C.” (p. 29).

Curry (2001) found that labeling and shelving were not consistent. Curry noted that because some collections did not have a separate teen or young adult fiction section, all fiction for patrons over the age of 10 were shelved together. Telephone and e-mail messages were used to clarify the data. An analysis of the data showed that about fifteen percent of the titles for older children and young adults that were controversial were shelved with the adult fiction. Curry found that controversial books for older children and

young adults may be moved to adult fiction sections in an effort to avoid censorship challenges.

In the second part of the study, Curry (2001) investigated why books for older children and young adults were challenged. For each title, Curry recorded the reasons for the challenge. These reasons were placed into the following categories: profanity, sexuality, religion/witchcraft, violence/horror, rebellion, racism/sexism, substance use/abuse, suicide/death, crime, crude behavior, and depressing/negative tone.

The researcher stated that children and teens need information to make decisions and that while nonfiction includes the facts, fiction includes emotions and relationships. Curry (2001) also found that books with controversial topics are the most popular.

Coley (2002) conducted a study to find out if school library media specialists practice self-censorship towards young adult literature. He stated that young adult (YA) literature includes greater realism and because of this it is more common for the literature to be challenged.

The study included a group of 20 YA books which met the following criteria: they contained content on which most challenges are based. Coley (2002) listed the same categories as Curry (2001). Selections had six or more reviews in professional review sources most commonly used by teacher librarians. The list of books then had to meet at least two of the following criteria as well: the books were highly recommended or received starred reviews; the book or its author was nominated for, or received, an award; and/or the book was placed on a list of recommended books for school library media specialists by an organization with expertise in YA literature. The study also included 100 randomly selected public high schools from Texas which were members of the Texas

Library Connection (TLC). Coley used the TLC union catalog to provide the data for his research.

Coley (2002) looked at fifty percent ownership of titles from the list as the criterion, based on data, “for avoiding the allegation of self censorship” (para. 19). The data suggested that self-censorship is practiced by the majority (82%) of the teacher librarians in the studied schools. Coley found that the book which was owned most often was a book from the Harry Potter series. The book owned the least was *Love and Sex: Ten Stories of Truth*. He explained that this particular book had been recently published in 2001 and so perhaps too recent to be owned by many schools. The data showed that none of the schools owned all of the books on the list. Eighteen schools owned fifty percent or more of the books from the list. The data showed that the larger schools owned more of the books than the smaller schools. Coley stated that more investigation should be done to reveal the relationship to smaller budgets.

Coley (2002) recognized the limitations of his study which included the small number of schools, the small sample of book titles, the number of non-fiction books included, and the fact that not all of the schools in Texas are members of the TLC union catalog.

Coley (2002) continued by saying:

Because of the attraction teenagers experience toward realistic YA literature and the opportunities such literature offers teenagers to vicariously experience many of the more negative aspects of their culture, it is important that teens have access to realistic YA works (para. 35).

Summary

Balas and Hariharan (1998) found that the majority of the adult participants in their survey opposed research on cloning. The majority also believed that cloning should

be taught in school with an emphasis on ethics and facts of cloning. The researchers also noted that the biggest concern of those who were interviewed was the control of cloning. Carroll (2001) found that a majority of Americans were opposed to human cloning.

Greenlaw (1970) found that children's science fiction seeks to explore the effect technology has on human values. Sullivan (1999) found that well written young adult science fiction explored "the nature of the human condition" (p. 32) and addressed current questions and issues.

Carroll (1997) concluded that literature for young adults should be looked at with a critical eye to see if the problems and solutions in the literature are realistic because many young adults read realistic fiction not only for the pleasure of reading but as a source of information as well. Curry (2001) found that controversial books for older children and young adults were sometimes relocated in a library as a way to avoid or defuse censorship challenges. Coley (2002) found that more than fifty percent of the schools that were part of his study practiced self-censorship in the selection of young adult realistic fiction for the school library. He also found that the smaller schools owned fewer titles from the sample list than the larger schools.

These findings indicate a need to examine recent young adult science fiction and its treatment of controversy. The topic of cloning represents a significant current controversy, as indicated by the press (J. Carroll, 2001; Pollack, 2004). Exploration of the treatment of cloning in young adult science fiction is the purpose of this study.

CHAPTER 3

METHODOLOGY

Introduction

Cloning has become a newsworthy topic that is of interest to young adults. The question of whether or not a human should be cloned continues to be debated. There are many ethical issues with a wide range of viewpoints. This study analyzed how human cloning is portrayed in young adult fiction.

Research

In qualitative research “the researcher collects open-ended, emerging data, with the primary intent of developing themes from the data” (Creswell, 2003, p. 18).

Grounded theory is one method used to take the open-ended data and arrive at a theory (Glaser & Strauss, 1967). Some characteristics of grounded theory include conceptual categories and properties, hypotheses, and integration of theory. A category is defined as standing “by itself as a conceptual element of the theory” and properties are part of a category (p. 36). The categories and properties come from the data. A core category is selected from all the categories available and is used to form the theory (Creswell, 2003, pp. 451-452). Glaser and Strauss (1967) state the following about generating theory:

Joint collection, coding, and analysis of data is the underlying operation. The generation of theory, coupled with the notion of theory as process, requires that all three operations be done together as much as possible. They should blur and intertwine continually, from the beginning of an investigation to its end (p. 43).

Creswell (2003) stated that the researcher will have no preconceived ideas for themes and will be open to the themes that may emerge from the data. The data are coded by “labeling those categories with a term, often a term based in the language of the participant” (p. 192). Creswell (2003) also stated that the data will be sorted. Following

each sort, the data will be interpreted until a saturation point has been met. The saturation point is met when there are no longer emerging themes and categories to sort. During this process a journal was kept, which contained notes about each book as well as notes about possible themes and categories.

Population

For this study, young adult fiction books that include the topic of human cloning in the storyline were chosen from a variety of resources. The list of resources appear in Appendix A. Books with a copyright date of 1997 or later were chosen. The year 1997 was chosen because that was the year scientists publicly announced Dolly, the cloned sheep, marking a major turn in the science of cloning and bringing the idea of cloning a human closer than previously thought. The researcher began the study by selecting the young adult fiction to be analyzed. Both print and electronic resources were used to obtain titles for the study. Search terms included *clone, cloning, fiction, juvenile literature* and *young adult*. If ages needed to be specified, ages 12-18 were used. If language needed to be specified, English was chosen. Books chosen were originally published in the United States. A list of titles was compiled by searching EBSCO, Academic Search Elite, Library of Congress Catalog Online, NoveList, Children's Literature Comprehensive Database and the UNI Rod Library Catalog. Print resources available at the UNI Rod Library were also consulted for title suggestions. Print resources included *What Fantastic Fiction Do I Read Next?: A Reader's Guide to Recent Fantasy, Horror, and Science Fiction; Best Books for Young Adults, Grade 7-12; Middle & Junior High School Library Catalog, 8th ed.; Subject Guide to Children's Books in Print 2002;* and *Fiction Catalog*. From this preliminary list, the researcher searched the WorldCat

database to determine the number of libraries that owned each title. Books selected for the updated list were reported by WorldCat to be held by at least 200 OCLC member libraries. Nineteen titles were chosen from this source since it was an indication of titles that would be most available to readers. From this list of 19 books, 8 books were removed. Seven were found to be originally published outside of the United States making them invalid for this study. One was removed because the topic of cloning was not explored in the storyline. The final list of 11 book titles is Appendix B.

Procedures

Once the titles had been identified the researcher read each book. A journal was kept. Preliminary themes were identified and recorded. After each book was read, the appropriate themes for that title were assigned. As new themes emerged, they were added to the list of preliminary themes. The list of preliminary themes can be seen in Table 1. Glaser and Straus (1967) define saturation as being met when the researcher “sees similar instances over and over again” (p. 61).

Table 1

Preliminary Themes

The clone's search for identity
The clone's search for purpose
The clone's fight for survival
The clone's fight for individual freedom
The clone has exceptional abilities/talents
The clone's ability to heal quickly
The clone is always healthy
Genetic problems with the clone
Clones have shared memories
Dislike/hatred of clones
Creation of clones to be workers
Creation of clones for donor parts
The desire of others to create a perfect population of people
The fight against global control of everyone
One character in search of complete control
Heredity (genetics) s. environment
Clone searching for cure for his/her sickness/disease
Explores idea: did the end justify the means

After the list of preliminary themes was recorded, they were grouped together in like categories as seen in Table 2. The re-sorting resulted in six major themes.

Table 2

Final Theme Categories

Final Theme	Preliminary themes
Utilitarianism	Creation of clones to be workers
	Creation of clones for donor parts
Exceptionality of clones	The clone has exceptional abilities/talents
	The clone's ability to heal quickly
	The clone is always healthy
	Genetic problems with the clone
	Clones have shared memories
	Clone searching for cure for his/her disease
Individuality	The clone's search for identity
	The clone's search for purpose
	Heredity (genetics) vs. environment
	The clone's fight for individual freedom
	Clone's fight for survival
The Fight for or against control	The desire of others to create a perfect population of people)
	The fight against global control of everyone
	One character in search of complete control
Dislike or hatred of clones	Dislike /hatred of clones
Justification of cloning	Explores idea: did the end justify the means

After the larger themes were determined, the book titles were separated into these groups, as seen in Table 3. This process was achieved by taking the titles that matched the preliminary themes and placing them in the correlating larger theme groups. The researcher analyzed the themes of the eleven books.

Table 3

Book Titles in Each Theme Category

Final Theme	List of books
Utilitarianism	The Goodness Gene
	The House of the Scorpion
	Silver Eyes
Exceptionality of clones	Amy, Number 7
	The Clones
	ReGeneration
	I.D.
Individuality	Amy, Number 7
	Double Identity
	The Goodness Gene
	The House of the Scorpion
	ReGeneration
	Star Split
	I.D.
The Fight for or against control	Amy, Number 7
	The Bar Code Tattoo
	The Clones
	The Goodness Gene
	This Side of Paradise
Dislike or hatred of clones	The House of the Scorpion
Justification of cloning	I.D.

The researcher analyzed the themes of the eleven books. A table was created for each theme. The analysis of the tables is reported in chapter four.

CHAPTER 4

RESULTS

The researcher conducted a content analysis by looking for themes that emerged in the titles read. The list of books chosen provided Appendix B. The final themes identified were Utilitarianism, The Exceptionality of Clones, Individuality, The Fight For or Against Control, Dislike or Hatred of Clones, and Justification of Cloning. Many books explored multiple themes.

Findings

Each book was examined through a thematic lens to answer the research questions for this study:

1. Does young adult fiction confront the complexity of ethical issues about human cloning?
2. Do the plots and characters in young adult fiction about cloning provide substance to provoke reader response to the ethical controversies that surround cloning?

A table was created for each theme to report book title and a description or quotation from the book to show evidence of the ethical considerations given to that theme within the story and to indicate how the book addressed the complexity of the topic.

Utilitarianism

Three books mentioned the utilitarianism of clones. The clones were created to be workers or to be used for donor parts. In *The Goodness Gene*, Will comes to the

realization, with the help of his friend Leora, that he is a clone. When they dug deeper, they found out he was a clone of Adolf Hitler. Will's father, Hayli, the Compassionate Director, could not clone himself due to a nut allergy. It scared Will that he was a clone because clones had been outlawed. With the help of others, he continued to learn more about himself and Hayli. He arrived at the realization that Hayli was planning to transplant human tissue into synthetic individuals (SI). Will thought Hayli would use his brain to create a super SI. He learned the SI's weren't working and that Hayli would transplant his brain into Will's body. Will confronted Hayli with what he knew. He found out that Hayli's brain would be fused with his own inside his own body. Hayli was pleased when he thought Will understood. It's at this point that Will carried out his plan to end it all.

In the story *Silver Eyes*, Angel met Zinnia and Dahlia. The two girls were clones. Even though cloning was illegal in their society, their progenitor, Iris, received special permission. They were to carry on her work of reversing the Blight after she was gone.

In *The House of the Scorpion*, Matt, the main character, learned that he was also a clone but he was treated differently. He was El Patron's clone. El Patron had clones before so he could use them for donor parts, allowing him to live a longer life. In his teenage years, Matt learned how he was born. He later learned that he was created so El Patron could use him for donor parts and continue to live. El Patron died when it was learned that Matt's caregiver, Celia, slowly poisoned him with arsenic. His heart could not be transplanted into El Patron.

Both *The Goodness Gene* and *The House of the Scorpion* show how the main character learned, a little at a time, that he was created to be used as a donor. The

development of that knowledge throughout the story allowed the reader to see how the character felt about it and in turn make their own decisions on how he or she as a reader felt about the idea. *Silver Eyes* delved into the feelings one clone had about being a clone. Both were competing for the same job but it's Zinnia who voiced her fear of being left behind, to be alone, if Dahlia got the job. All three presented the idea of utilitarianism but *The House of the Scorpion* and *The Goodness Gene* explored the ethics more because the storyline revolved around the idea of cloning whereas in *Silver Eyes*, it is more incidental than central to the plot or character developments.

Table 4

Complexity and Ethics in Books with Utilitarianism Theme

Theme	Book Title	Complexity	Ethics
Utilitarianism	<i>The Goodness Gene</i>	Will told Leora about Drew, the synthetic individuals, stolen brains & failed transplants. “So that’s Hayli’s scheme for becoming immortal,’ Leora said, breathing heavily. ‘But are they still working on it?’ He hesitated. ‘Yes, I think so. They’re looking for the perfect body.’ He would not say more.” (Levitin, 2005, p. 240)	Will confronted Mara about the abductions and what really occurred. “‘What are you going to do?’ she asked fearfully. ‘I’m not sure yet. Someone has to stop this. Someone has to stop Hayli.’” (Levitin, 2005, p. 236)
	<i>The House of the Scorpion</i>	Tam Lin explained to Matt how he was cloned from El Patron. Tam Lin felt he should explain things to Matt since he has no family. He began to understand that El patron created clones for parts but believed he was different.	When discussing El Patron’s age and condition of his heart Matt asked Maria, “‘Do you know where he got it?’ ‘I-I-’ Maria seemed confused. ‘I’m not supposed to talk about it, but yes, I do know where he got it! And it’s evil!’” (Farmer, 2002, p. 208)
	<i>Silver Eyes</i>	Zinnia explained how Iris was able to clone herself. “‘She knew that when she died her work reversing the Blight would be unfinished and that no one else had the genius to continue it so she made us to carry forward her life’s work.’” (Luiken, 2001, p. 80)	“‘I think they’re already afraid,’ I [Angel] said thoughtfully. ‘I think each one is terrified that she’ll be the one to lose and the other one will cast her out without a penny.’” (Luiken, 2001, p. 81)

As the quotations in Table 4 reveal, the complexity associated with utilitarian attitudes toward clones was acknowledged in all three titles. These complexities include the concept of creating a perfect human being in *The Goodness Gene*, the concern about

family in *The House of the Scorpion*, and the idea of self-generation of one's work as well as one's being as characterized by Iris's efforts to clone herself in *Silver Eyes*. Likewise, Table 4 includes evidence that ethical issues associated with utility of clones were incorporated into character and plot in all three books. The ethical issues addressed included the disapproval of cloning for organ donation in *The Goodness Gene* and *The House of the Scorpion*. *Silver Eyes* characterized how one of Iris's clones felt about being alone once one of them was chosen to carry on her work.

Exceptionality of Clones

Another theme that emerged was the exceptionality of clones. The clone may have exhibited exceptional abilities or talents, was always healthy or had the ability to heal quickly, may have shared memories, or may even had a genetic problem due to being a clone and therefore may have been searching for a cure for the disease. The main element for this theme was that the clone was obviously different from humans in some way.

In *Amy, Number 7*, Amy continuously learned about things she was really good at. Running, a talent for gymnastics and skating, and hearing well were things that Amy discovered about herself throughout the story.

Varina, the main character in *ReGeneration*, was a clone and had an excellent memory. As she met others her Uncle had asked her to warn, she learned they, too, had exceptional abilities. Chase could hear very well and Allison was super strong. They used their abilities to escape from Dr. Victor and Geneva, who were pursuing them.

In *Watchers, I.D.* Eve helps someone who was in a skiing accident. Because of this she learned that many young girls were dying of conditions that normally affected the

elderly. She learned three girls like her had died. They were similar in appearance and all adopted. They all died at age 14, Eve's age. She continued to search for others and found out that some of them believed they were clones. She learned that Dr. Black wanted to clone humans to help cure sickness. He was unable to save his own daughter. She went to his house and found a serum which she took. The serum cured her condition.

In *The Clones*, SeaBrig believed that he could teach Brigand how to swim using his thoughts. The idea that the two clones could communicate with each other in this manner was referred to at later times in the story as well.

Table 5

Complexity and Ethics in Books with Exceptionality of Clones as a Theme

Theme	Book Title	Complexity	Ethics
Exceptionality of Clones	<i>Amy, Number 7</i>	Not addressed	Not addressed
	<i>The Clones</i>	<p>“‘I can’t swim’ he [Brigand] said. ‘You can’t?’ Seabrig hurried toward his clone-twin and took his hand. ‘I can, and if I can do it, you can too, because we’re the same person. If we go into the water together, my thought waves will beam right into your head and you’ll know how to swim.’” (Skurzynski, 2002, p. 45)</p>	<p>Their special power of being able to communicate through thoughts is explained but the ethics of it is not explored.</p>
	<i>ReGeneration</i>	<p>“‘The experiment on the boat did more than clone us, because my hearing is so incredible. The others might have super hearing, too.’” (Singleton, 2000, p. 74)</p>	<p>“‘Wow. You think so?’ For the first time since learning about this whole clone thing, I felt a stirring of curiosity. Science had always intrigued me and I’d often watched quietly while Uncle Jim worked with test tubes and chemicals. I’d never seen him experiment on anything living, and the concept of cloning blew me away. Playing God with DNA...I couldn’t help but be fascinated.’” (Peel, 2000, p. 74)</p>

Theme	Book Title	Complexity	Ethics
Exceptionality of Clones	<i>I.D.</i>	<p>Eve realized she had memories of the other clones like her. She also realized they had the same disease.</p> <p>““The disease. It took Tanya. It took dozens of others on that list – strangers, guys <i>and</i> girls – almost exactly the same age.</p> <p>But it wasn’t only strangers. It also killed a girl named Alexis, who happened to be <i>genetically identical</i> to Bryann. And Caroline. And Danielle. <i>And me.</i>” (Lerangis, 1999, p. 93)</p>	<p>““It was wrong for him to do that,’ Eve Said.</p> <p>Dr. Rudin touched her hand. ‘But look what came out of it. A treatment for a new disease, something that no one has understood. Except Dr. Black.’</p> <p>‘But the cloning-‘</p> <p>‘Perhaps someday we’ll find Dr. Black’s notes about that, too. So...many good consequences, right?’</p> <p>Eve turned away. She wasn’t so sure.</p> <p>‘Danielle is still alive, Eve,’ Martina said, ‘in you.’</p> <p>‘So are the others,’ Kate added.</p> <p>And they would stay alive. In Eve’s brain. Their memories flashing in and out at odd times. Haunting her the rest of her life.”</p> <p>(Lerangis, 1999, p. 163-164)</p>

Table 5 shows examples of text as evidence of the texts’ portrayal of the complexity and ethical issues of cloning. It should be noted that one of the four books in this thematic category failed to address explicitly the complexity of the cloning issue, and two ignored ethical issues. *Amy*, *Number 7*, *ReGeneration*, and *The Clones* explored the idea that clones had an exceptional talent of some kind. This was not the main focus of these three stories though. The complexity of the issues within this theme included shared

thoughts in *The Clones*, each clone had his/her own special ability I *ReGeneration*, and clones created to be used to test cures for a disease in *I.D.* Not all of the titles within this theme explored the ethics surrounding the idea that the clones were exceptional in some way. *ReGeneration* discussed the idea of scientist playing God when cloning and manipulating genes. Ethics within this theme were more fully explored in *I.D.* Eve had memories of the other clones like her though she did not realize it at first. She also had a genetic disease, as did the other clones. She was searching for the others and hoped to also find a cure. She had a conversation with Dr. Rudin in which the idea of cloning was explored as to whether Dr. Black had a right to do what he did.

Justification of Cloning

I.D. explored the justification of cloning as well. As Eve searched to learn more about the others who were clones like her, Martina handed her a notebook. In the notebook she read how Dr. Black wished he could make a clone because he believed he could have then saved his daughter. Dr. Rudin was excited how Eve's discovery and cure could help others with the same genetic disorder. Eve was adamant that Dr. Black never should have cloned humans.

Table 6

Complexity and Ethics in Books with Justification of Cloning as a Theme

Theme	Book Title	Complexity	Ethics
Justification of Cloning	<i>I.D.</i>	Dr. Black's journal told how he was unable to manipulate the genes and all the clones had the disease.	Eve asked Dr. Rudin to destroy Dr. Black's notes if they were ever found.

Not only does this book examine how complex the issue can be, it also looked at the ethics of human cloning from the viewpoint of different characters. This book

discussed why Dr. Black made the clones and how he was unsuccessful at manipulating the genes on the clones. Even though Eve found the serum to save herself, and in turn save others, she did not agree that cloning was ethical despite the fact that Dr. Rudin said it would save so many people. The complexity of cloning was brought forth in this book. The ethical issue was whether cloning had redeeming virtues.

The Fight for or Against Control

The fight for or against control was a theme that presented itself in six books. Sometimes one character was in search of control over all. Other times there was the desire for a perfect population and the fight against that.

In *Amy, Number 7*, Amy learned that her mother worked on a project in D.C. that created many Amys. While they thought they were doing good, the scientists learned that the people behind the project wanted to create a master race. When they learned this, the evidence was destroyed, except for the Amys.

In *The Bar Code Tattoo* Kayla learned that each person's genetic code was linked to a barcode tattoo. Everyone was encouraged to get this tattoo when they turned seventeen. The tattoo became increasingly important as it was needed to make purchases, buy a house, get a job, etc. Kayla learned from Allyson that in Europe, where there were no bans on cloning, the first clones were not allowed to get a barcode tattoo. The tattoo had become mandatory just as Global-1 lifted restrictions on cloning. Kayla also learned that babies had a chip implanted when they were born. Healthy babies were genetically enhanced. The others were left to die. She went on the run to prevent getting a barcode tattoo. Kayla shared with her friend Amber what she had learned about Global-1 from the people who were trying to help her, "By cloning only the healthiest people-and making it

hard for others to survive- Global-1 has stopped the course of natural human evolution” (Weyn, 2004, p. 231) The book ended with a look into the future where Kayla and Mfumbe returned to their old world to fight against Global-1.

Will came to realize how much control Hayli had in *The Goodness Gene*. He also knew how much more control Hayli wanted. When he realized how he, as a clone, was part of Hayli’s plan for continued control he created a plan to stop him.

In *The Clones*, Brigand, a clone, planned a revolt. His other clone, SeaBrig (who soon called himself Cyborg) did not agree to go along with the plan. He took Corgan, who raised him, to the tunnels. It was there that Corgan and Sharla explained that Brigand was going to kill him. Cyborg escaped with Corgan.

Mr. Barrett, Jack’s father, had created a gated community called Paradise in *This Side of Paradise*. No one left after arriving there. Mr. Barrett moved his family there. Jack and Troy grew suspicious. While investigating, Jack realized that Mr. Eden and his father were the same person. He also realized that the town of Paradise was full of androids. When Jack and his Gram confronted Mr. Barrett, Jack tried to get Troy’s clone to question Mr. Barrett knowing that if the clone was no longer under his control it would anger him. The clone carried Troy out of another room. When Mr. Eden, Mr. Barrett’s alternate personality, tried to electrocute Troy, the clone jumped in front of Troy and saves him. This crushed Mr. Eden. Jack, Troy, and Gram escaped and returned to their life outside of Paradise. At the end the reader learned that Mr. Eden was living in another country trying to build another paradise.

Table 7

Complexity and Ethics in Books with the Fight for or Against Control as a Theme

Theme	Book Title	Complexity	Ethics
The Fight for or Against Control	<i>Amy, Number 7</i>	<p>““The project was code-named Crescent. I don’t know why, it was just a word. But the mission was monumental. We were directed to collect chromosomes and other genetic material from humans of exceptional form-people with superior health, intelligence, talent. We were told that our investigations, our pioneering efforts, could result in the identification of a means by which to extend human life, eradicate disease, eliminate birth defects, develop the means to correct the mistakes of nature. We thought we were working for the benefit of all humanity. We believed we were doing something pure and noble and good.” (Kaye, 1998, pp. 185-186)</p>	<p>““We thought that as cold, impersonal scientists, we could do this. The notion of allowing a master race to develop was so appalling, you see, and this would be the lesser of evils. But we had a conscience, we had ethics, we had feelings. So while we were able to eliminate all evidence of our work that existed on paper, or in computer memory, we could not destroy the most significant product. We could not kill the Amys.” (Kaye, 1998, p. 187)</p>

Theme	Book Title	Complexity	Ethics
The Fight for or Against Control	<i>The Bar Code Tattoo</i> (This book discusses Global-1's desire for control and the people who fight against it. Cloning is a small part of this plot line.)	"Eutonah has been explaining such fascinating things to me. According to her and the others, Gobal-1 has changed the path of evolution. By cloning only the healthiest of people – and making it hard for others to survive – Global-1 has stopped the course of natural human evolution." (Weyn, 2004, p. 231)	Mfumbe tells how Young has a group of senators who have put together new laws to give back freedoms including the right not to have a barcode. Kayla knows Global-1 will fight back but she agrees to help make a change.
	<i>The Clones</i> (Brigand, a clone, wants to lead a revolt but he did not use cloning to do it.)	Corgan learns that Brigand is planning a revolt against the Supreme Council. He plans to start by publicly killing Corgan.	The ethics of Brigand's search for power and control are not explored. It's a plot point in the story and they work to save Corgan and Cyborg but do not do much to stop Brigand's plan.
	<i>The Goodness Gene</i>	Will realized that Hayli planned to live forever and would use Will's body as a way to accomplish that. He wanted to stay in control.	Will confronted Mara about the abductions and what really occurred. "What are you going to do?" she asked fearfully. 'I'm not sure yet. Someone has to stop this. Someone has to stop Hayli.'" (Levitin, 2005, p. 236)

Theme	Book Title	Complexity	Ethics
The Fight for or Against Control	<i>This Side of Paradise</i>	Jack knew the town of Paradise was filled with androids. He thought the other Troy was also an android but learned he was a clone of Troy. Jack said “Because he can’t <i>control</i> a clone. Isn’t that right? Isn’t that what it’s all about, power...and <i>control</i> ?” (Layne, 2001, p. 191)	The clone of Troy was created so Mr. Eden/Mr. Barrett could have his perfect life. He was devastated when the clone gave his life to save Troy. In the end, he didn’t have control.

In books within this theme, authors did not always raise ethical issues about cloning or talk about the complexity of the issues. This may be due to the fact that the power being sought out by a character was not always obtained by cloning. Sometimes the character seeking power was a clone, but because the clone was not using cloning to gain control, the issue was not explored further.

Individuality

Individuality was another theme found in the books read. The search for identity, purpose, individual freedom and even survival were presented in some of the books. The idea of heredity (genetics) vs. environment was also explored in another book.

In *Star Split*, Darci met Vivian at Rock Climbing Camp. They realized that Vivian was a clone of Darci. They could not be seen together as it would point out a crime and they, along with their families, would be incinerated. Darci learned that she is a chimera, a combination of different cells of different fertilized eggs. Her parents explained how important it is to have chimera genes in the population to prevent the extinction of humanness. Vivian learned the same information that Darci had. Darci and her family

were taken in for the creation of a clone. As they were prepared for incineration, the Prima and Prima Matri jumped in the incinerator and died for them.

In *ReGeneration*, Varina fought to survive as she and Chase were being chased by Dr. Victor and Geneva. They were also trying to warn the other clones.

In *Double Identity*, Bethany is dropped off at her Aunt Myrlie's house one day. This is an Aunt she has never met. She wondered why she's left there when her parents had spent every moment with her up to this point. Myrlie and Bethany discovered that Bethany was a clone of Elizabeth, her parent's first child that died in an accident. Bethany realized that she had many of the same likes and dislikes that Elizabeth had. She even began to lie about some of the things she liked as if to separate herself from Elizabeth as she learned more about her and the reason her parents left her with Myrlie.

In *Amy, Number 7*, Amy searched for who she was. An assignment in class to write an autobiography started that search. At first she came up empty handed, but when she did find information is turned out to be false. Once she learned she was a clone, Amy returned to school and tried to be ordinary in order to stay safe.

Eve learned she was a clone in *Watchers, I.D.* and had the same genetic disorder as the other clones. As she searched for the other clones, she learned more about who she was and thought she might be able to find information about Dr. Black which could help them to live.

In *The Goodness Gene*, Will learned he was a clone. He was searching for answers about who he was and why he was created, while learning about Hayli's plan for control. He also had to fight for his survival once he learned he was a clone, as clones were not allowed. He was afraid he would be killed.

In *The House of the Scorpion*, Matt wondered who he was. When he realized he was a clone, he was sure there must be a special plan for him. As he grew older, he realized that he was clone to be used for organ donations for El Patron so he could continue to live. At this point he began to fight for his survival. When El Patron died and Mr. Alacran was in charge, he ordered that Matt be killed. Tam Lin helped him escape instead. He was given instructions to find Maria. He was caught by border patrol and ended up working in a plankton plant. After he escaped from the plankton plant, he ended up at a convent where he found Maria. He was convinced to act like El Patron to get back to the estate and destroy the opium fields. When he returned, he learned how everyone was poisoned at El Patron's wake. He decided to make things right with the help of his friends.

Table 8

Complexity and Ethics in Books with Individuality as a Theme

Theme	Book Title	Complexity	Ethics
Individuality	<i>Amy, Number 7</i>	Amy was searching to find out who she was. She learned that some information she had found about her was false.	Not addressed
	<i>Double Identity</i>	As Bethany realized how much she was like Elizabeth, she began to lie about things she liked so she would not be compared to her.	Bethany's Mom acted like she has had a break down. At one point, while talking to Bethany on the phone she talked about cloning Elizabeth so it would be like she never died. Joss, Bethany's cousin, could not believe Bethany was a clone because it was illegal and the technology was not around then. “‘Why did God want Elizabeth and your father to die?’ I ask, because I’m working on something like a geometry proof in my head. If God wanted Elizabeth dead twenty years ago, and if I’m just like Elizabeth, then is there something wrong with my being alive now? Were my parents defying God – did they think they were God?” (Haddix, 2005, p. 152-153)

Theme	Book Title	Complexity	Ethics
Individuality	<i>The Goodness Gene</i>	Will overheard a group of adults secretly meeting to discuss if he should be killed because he's a clone. Some said his soul was unique. Others said he had no soul.	“We have to remember our mission,” he said in a firm, calm voice. “We’re not killers. We’re only looking to bring some sanity back into the world. Now, a crazy person has cloned a tyrant. It is only one in a string of insanities that bombard us. We have to get to the source and transform the government, but not by killing. Our whole purpose was to infiltrate the system.” (Levitin, 2005, p. 157)
	<i>The House of the Scorpion</i>	“No, not the same. Because I’m different, Matt thought desperately, staring up at the ceiling of his bedroom.I’m different. I wasn’t created to provide spare parts.” (Farmer, 2002, p. 191).	Later in the story, El Patron states, “Without me, you would never have seen a beautiful sunset or smelled the rain approaching on the wind. You would never have tasted cool water on a hot summer day. Or heard music or known the wonderful pleasure of creating it. I gave you these things, Mi Vida. You...owe...me.” (Farmer, 2002, p. 235)
	<i>ReGeneration</i>	Varina and other clones were on the run from Dr. Victor and Geneva throughout the entire story.	Not addressed

Theme	Book Title	Complexity	Ethics
Individuality	<i>Star Split</i>	<p>“Vivian was more than what she thought she was and still at the same time she was less. She was an umbula [clone]. There was a small sinking feeling somewhere within her. Something nagged at the back of her brain. Words. Words carried on a hot white wind. <i>I’m not just your copy, Darci. I’m more than that...I know I am ME and that is different from you.</i>” (Lasky, 1999, p. 113)</p>	<p>““In our society we talk about individuality, we celebrate our Laureates, but do you know the Reading of the Lists and the Endowment Procedure Ceremonies are for me the unhappiest days of the year? These are the days when we actually deny the sanctity of the individual and instead elevate to an Otherness-like position the gene, the chromosome. Oh yes, we can umbellate a great scientist and artist, but you can’t copy...’ Lana paused before saying the next words, ‘a soul.’” (Lasky, 1999, p. 169)</p>
	<i>I.D.</i>	<p>Eve continued to look for the other clones in order to learn more about Dr. Black and if he found a cure. She believed she would die young too.</p>	<p>““It was wrong for him to do that,’ Eve Said. Dr. Rudin touched her hand. ‘But look what came out of it. A treatment for a new disease, something that no one has understood. Except Dr. Black.’ ‘But the cloning-’ ‘Perhaps someday we’ll find Dr. Black’s notes about that, too. So...many good consequences, right?’ Eve turned away. She wasn’t so sure. ‘Danielle is still alive, Eve,’ Martina said, ‘in you.’ ‘So are the others,’ Kate added. And they would stay alive. In Eve’s brain. Their memories flashing in and out at odd times. Haunting her the rest of her life.” (Lerangis, 1999, p. 163-164)</p>

Each of these books explored how the main character was searching for their individuality to show they are their own person and not just a copy of someone else. In some stories the ethics of the issue were explored through the theme of individuality, in others it was not (Table 8). Each of these books looked at the complexity of the theme of Individuality as each clone learned they were and clone and why he or she was created. Ethical issues addressed included cloning to replace a child who died, a clone is not a product to be used, and each clone is a unique person.

Dislike or Hatred of Clones

The *House of the Scorpion* was the only book in the study that explored the idea that clones could be despicable. Because Matt was a clone he had a stamp on the bottom of his foot which showed that he was the property of the estate. When he hurt his foot, some of the other Alacran's helped him until they saw the stamp. They began to treat him like an animal. He was kept in a room with sawdust to make the room become a giant litter box. Matt's caretaker, Celia, was told that he had gone away with El Patron. When she realized this was not true she found a way to get him out of there.

Table 9

Complexity and Ethics in Books with Dislike or Hatred of Clones as a Theme

Theme	Book Title	Complexity	Ethics
Dislike or hatred of clones	<i>The House of the Scorpion</i>	<p>When some of the Alacrans saw the stamp on his foot they treated him like an animal and kept him in a room with sawdust and nothing else.</p> <p>“‘Don’t,’ said Emilia. The seriousness in her voice made the little girl pause. ‘Matt’s a clone. You mustn’t go near it.’ ‘What’s a clone?’ ‘A bad animal.’” (Farmer, 2002, p. 27)</p>	When, Celia, his caretaker, learned of his fate she rushed to him and figured a way to get him out. Rosa, who kept him there, was punished.

The descriptions and quotations in Table 9 showed the complexity of the issue as well as the ethics by describing how Matt was treated like an animal, why he was treated that way, and how Celia saved him. The ethical consideration of this book deals with the idea that clones are not products or animals but people.

Summary

Young adult fiction does address the complexity of issues surrounding cloning. The call for a ban on human cloning has risen persistently in the scientific community (Stolberg, 2008; Crawford, 2009; Kolata, 2004). *The Goodness Gene*, *The House of the Scorpion* and *Silver Eyes* all mentioned that cloning was not allowed. Kaebnick & Murray (2001) reported that reproductive cloning could be used to produce certain genetic traits. This was seen in *Amy*, *Number 7*, *I.D.*; and *ReGeneration*. *The Clones* was different. SeaBrig and Brigand could share thoughts without speaking, something unique to the two of them, but they were not created to be that way. Kaebnick and Murray

(2001) also asserted that reproductive cloning could be used to replace a lost child.

Double Identity addressed this topic as Bethany learned she was a clone of Elizabeth, who died in a car accident. In *Star Split*, Darci's parents cloned her when they thought she was going to die as an infant. They did not raise the clone but the clone was adopted. They wanted to make sure her chimera genes were part of the population.

Researchers have suggested that clones cannot be an exact copy of the cloned due to the different environments in which they were raised (Kaebnick & Murray, 2001; Kolata, 2000; Wilmut, 2006). This issue was explored in *The Goodness Gene*, *Star Split*, and *Double Identity*.

Kaebnick & Murray (2001) also discussed how human cloning could result in babies with deformities. *The Goodness Gene* discussed how cloning used to be allowed until it took a wrong turn.

He knew from the history tapes that cloning was supposed to be for the ultimate good, to help repopulate the earth with the best and fittest people, and provide bone marrow and healthy tissue to regenerate diseased organs. But it got out of control. Everyone began making clones – governments, private companies, even single entrepreneurs, working in makeshift labs. They created ghastly creatures, copies of copies, designed for special functions, mindless, sometimes featureless mutants. Many got diseases of aging when they were only in their teens. Others wandered about aimlessly, subhuman trash. Most died out. Then, during the worst years of the Collapse, vigilante committees hunted them down, killed them in the streets, like vermin. With the advent of The Goodness, cloning was outlawed forever (Levitin, 2005, p. 83).

Post (2000) discussed the concern of using human clones as organ donors. This issue was discussed in *The House of the Scorpion* and *The Goodness Gene*. Miller (2000) discussed how commercial issues may drive companies instead of ethics. This was briefly touched in *The Bar Code Tattoo* when Kayla learned that Global-1 had lifted cloning restrictions and was controlling who could be cloned.

Pollack (2004) discussed the controversies associated with therapeutic cloning due to life being created for research. In *I.D.* Eve learns that she and the other clones were created to help Dr. Black find a cure for what killed his daughter.

Because these books looked at the complexity of issues surrounding human cloning, some of them also discussed the ethics of human cloning. The more in-depth the issues were explored, the more ethics were explored. Conversely, those books that did not explore an issue and only mentioned it on a surface level did not explore the ethics of human cloning. It should be noted that *Amy*, *Number 7* (Replica series) and *ReGeneration* (ReGeneration series) are the first books in a series and the topic may be explored further in later titles. Issues concerning human cloning may be explored further in other books in the series. *I.D.* is the third book of the Watchers series however each book within this series covers a different topic.

This study looked at eleven titles which included the topic of human cloning in the story to varying degrees. This study could be of use to teacher librarians who included these books in book discussions. The study provided examples of the complexity of the issues and ethics discussed. This study could also be of importance to teacher librarians looking to purchase fiction titles about human cloning. Sullivan (1999) found that young adult science fiction addressed issues that were current. This study reinforced that idea by showing that current issues surrounding human cloning were present in the eleven titles. Carroll (1997) stated that readers look to young adult fiction for pleasure reading and as a source of information. This study found that the issues raised about human cloning in young adult fiction reflect the issues discussed in research and the news. Based on this, those who read about human cloning in young adult fiction would be reading about some

of the issues surrounding the topic. The depth in which these issues are discussed would depend on whether or not the books discussed the complexity of the topic and the ethical issues about human cloning.

Teacher librarians could find this study helpful in choosing titles that fully discussed human cloning, the complexity of the topic and the ethical issues surrounding human cloning.

Chapter 5

CONCLUSION AND RECOMENDATIONS

Problem

This study sought to discover how complex issues about cloning were raised in young adult fiction and if those issues included the ethical concerns stated in Chapter 1. Those concerns included the fear that human cloning could create abnormalities or deformities, a shorter life span; human clones being used as organ donors, males no longer being necessary for reproduction, life being created for research purposes, the clone being treated as a product, and commercial issues overriding ethical issues within companies.

Conclusions

The researcher found that some young adult fiction about cloning does explore the ethical issues about human cloning and the controversy surrounding it. Other young adult fiction about cloning merely mentions it in the story while the entire story itself is not about cloning. The books that explored cloning raised complex issues that were found in the research. In books where cloning was the main focus of the story, the following issues were explored: (1) human cloning was banned just as many have asked for in reality; (2) even though the person was a clone they were not identical to the person he or she was cloned from; (3) the clones were used as organ donors; (4) the clone character was a clone of the parent's first child who died in an accident; and (5) the clone was created to help find a cure for a disease.

Some of the books read for this study only mentioned cloning and didn't fully explore the issues. In *Silver Eyes* the main character met two girls who are clones created

to carry on the work of the person from whom they were cloned. Troy had a clone in *This Side of Paradise* but it was only revealed toward the end of the story. *The Bar Code Tattoo* mentioned cloning briefly but the issues of human cloning were not explored.

The level at which the complexity of human cloning was discussed related to how well the plot and characters explored ethical issues that might provoke reader response. When cloning or being a clone was merely mentioned the ethical issues were not fully explored or not explored at all. When cloning or being a clone were an integral part of the storyline, the ethical issues were more thoroughly explored and would be more likely to provoke reader response.

Recommendations

This study focused on young adult books that discussed cloning. The books that were chosen were published in the United States in the year 1997 or later. For future study, a researcher may choose to widen the selection of books to include those published in other countries. Another possibility to further research on this topic would be to look at books about cloning that were published prior to 1997. Were the issues raised about cloning in literature before Dolly the sheep was introduced to the world similar to those found in this study? Would children's fiction and fiction for adults reflect the same themes as those found in young adult literature?

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Appendix A

LIST OF RESOURCES USED TO GATHER BOOK TITLES

Academic Search Elite Database - <http://0->

[web.ebscohost.com.unistar.uni.edu/ehost/search?vid=1&hid=7&sid=d04a0f2c-2d16-4581-8f9c-2399325e6c79%40sessionmgr14](http://web.ebscohost.com/unistar.uni.edu/ehost/search?vid=1&hid=7&sid=d04a0f2c-2d16-4581-8f9c-2399325e6c79%40sessionmgr14)

Amazon.com – <http://www.amazon.com>

Barron, Neil (1999) *What Fantastic Fiction Do I Read Next?: A Reader's Guide to Recent Fantasy, Horror, and Science Fiction*. 2nd ed. Detroit : Gale Group.

Calvert, S. J. (1997) *Best books for young adults, grades 7-12*. New Providence, NJ : R. R. Bowker

Children's Literature Comprehensive Database -

<http://clcd.odyssi.com/member/csearch.htm>

EBSCOhost Database – <http://search.epnet.com>

Library of Congress Online Catalog – <http://www.loc.gov>

Middle and Junior High School Library Catalog, and Senior High School Library Catalog within the Wilson Web Database – <http://vnweb.hwwilsonweb.com>

NoveList Database – <http://search.epnet.com>

Price, A. and Yaakov, J. eds. (2000) *Middle & junior high school library catalog, 8th ed.* New York : H. W. Wilson.

Subject guide to children's books in print 2002 (2002). Providence, NJ : R. R. Bowker.

University of Northern Iowa Rod Library

WorldCat.org (OCLC) database - <http://www.worldcat.org/>

Yaakov, J. ed. (2001). *Fiction catalog, 14th ed.* New York : H. W. Wilson

Appendix B

LIST OF YOUNG ADULT BOOK TITLES

- Farmer, N. (2002). *House of the scorpion*. New York : Atheneum Books for Young Readers.
- Haddix, M. (2005). *Double Identity*. New York: Simon & Schuster Books for Young Readers.
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