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An Exploration of Quality and Gender Representation in Children’s Informational Books on Human Origins from 1922 to the Present

AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY in Library and Information Science

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An Exploration of Quality and Gender Representation in Children’s Informational Books on Human Origins from 1922 to the Present

Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Library and Information Science

by

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Abstract

This study uses a liberal feminist and scientific framework to explore quality of information and gender representation in children’s informational books on human origins published in America from 1922 to the present and recommended by the Children’s Catalog. Utilization of the Children’s Catalog allowed for the development of a sample of texts likely to have been or be part of public and school library collections.

By analyzing a sample of books that spans the early 20th and 21st centuries this study identifies changing biases and values as well as the constructed nature of children’s books on human origins. Content analysis of the text and images of the sample was employed to answer questions about the information these books provide children about human origins, as well as, the characterization of men and women. Specific questions explored include: How are human origins represented in children’s expository texts? To what extent do these books mirror paleoanthropological thought at particular points in time? How have representations of human origins in children’s informational books changed over time? How are men and women characterized in these books?

Critical consideration of children’s informational texts is of increasing import in the current educational climate in the United States as Common Core State Standards—academic imperatives implemented in schools across the nation—emphasize curricula focused on nonfiction texts.
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Chapter 1: Introduction

**Background**

The purpose of this study is to critically evaluate how scientific information and gender roles are conceptualized in children’s informational books on human origins recommended by the *Children’s Catalog*, a standard Library and Information Science selection tool, from 1922 to the present. Children's informational books on human origins are texts written for the primary grades that feature a discussion of human origins based on paleoanthropological findings (Galanidou, 2007). These books constitute a medium by which children can construct an understanding of human evolution. Implicitly, they also present an image of what it means to be male or female. From a content analysis approach, this study explores what information these books provide children about human origins and examines how males and females are represented as social and active individuals.

A growing body of research suggests that the representation of males and females in books can have an impact on a child’s conception, development and internalization of notions of social roles and self. (Weitzman, et al., 1972; Tepper & Cassidy, 1999; Butzow & Butzow, 2000; Peterson & Lach, 2000; Hamilton, et al., 2006; Blake & Maiese, 2008; Lerer, 2008; Frawley, 2008; Adams, Walker & O’Connell, 2011). Thus, children’s informational books on human origins can serve as tools to provide children with an understanding of human evolution, as well as transmit messages about the roles of men and women.

A 2011 study conducted by the Association of Booksellers for Children concludes that books are considered by consumers to be the most valuable medium for education and librarians rank among the most influential in terms of shaping reading selections (McLean, 2011). These results reinforce the idea that as information professionals we must think
critically about the information sources we collect and promote. Traditional evaluation of information resources by Library and Information Science (LIS) professionals takes into account accuracy, bias, an author’s expertise and documentation of sources on a book-by-book basis (Hearne, 1993). This study moves beyond a book-by-book critique by analyzing a sample of books that spans the early 20th and 21st centuries to identify changing biases and values. Bias identified by a critical evaluation can inform collection development and be addressed by information professionals and educators when collecting, disseminating and utilizing children’s informational books.

**Problem Statements**

- *Research indicates that despite the increasing importance, use and publishing of children’s informational trade books there is a shortage of quality children’s informational texts.*

Science trade books are increasingly utilized to supplement grade school education and the reading of nonfiction texts is mandated by contemporary education policy (Barlow, 1991; Armbruster, 1993; Ross, 1994; Royce & Wiley, 1996; Bamford & Kristo, 2000; Rice, 2002; Benson, 2003; Galda & Cullinan, 2006; Schussler, 2008; Crowson & Hopper, 2009). An evaluation of the circulation records of school libraries reveals that students check out twice as many informational texts as fiction books (Doiron, 2003). Furthermore, a study of grade school students’ reading preferences indicates that children select nonfiction texts to read roughly fifty percent of the time when offered both fiction and nonfiction reading choices (Kletzien & Szabo, 1998). A study by Simon (1982) found that when scientific concepts were studied in an elementary school classroom nonfiction books on the topic in the school library collection were subsequently checked out by educators without consideration of accuracy. Similarly, Sudol and King (1996) suggest educators assume
children’s nonfiction texts are accurate. However, research on the scientific content of children’s nonfiction books suggests that trade books often contain inaccuracies (Rice, 2002; Gomez-Zweip & McComas, 2006; Schussler, 2008). Following a survey of 50 children’s science trade books, Rice (2002) concludes that inaccurate information is included in both the text and images of these books. An example of an inaccuracy encountered in this study is the identification of a mushroom as a plant in the book *The Reason for a Flower* (Heller, 1983). A subsequent study by Rice that used content analysis to assess the scientific information in ten children’s science trade books about whales revealed that the sample contained “a number of scientific inaccuracies and misconceptions” (Rice, 2002, p. 557).

- **Biased representation of gender in children’s fiction is well noted and can impact a child’s conceptualization of gender roles.**

  Research focused on exploring the representation of females in literature became commonplace in the 1960s as many researchers were influenced by the ideology of the feminist movement (Williams, et al., 1987; Chafe, 1994). The studies of this period suggest males and females in children’s literature are characterized in a stereotypical fashion in line with Western gender ideologies (Weitzman, et al., 1972; Stewig & Higgs, 1973; Bereaud, 1975; St. Peter, 1979; Kolbe & LaVoie, 1981; Scott, 1981; Davis, 1984). Specifically, this body of research found that depictions of males dominate children’s books and that females are depicted in passive, inconspicuous and inside roles, while males are depicted in active and social roles out in the open (Weitzman, et al., 1972; Williams, et al., 1987). Similarly, recently published research concludes contemporary children’s literature features an underrepresentation of females and stereotypical representation of gender roles.
roles (Clark, et al., 2003; Anderson & Hamilton, 2005; Diekman & Murnen, 2004; Gooden & Gooden, 2001; Hamilton et al., 2006).


Numerous studies such as those cited above have documented the existence of bias in children’s fiction (Worland, 2008). The aim of this study is to explore disparities in the representation of males and females in children’s informational books on human origins.

**Statement of Purpose**

The purpose of this study is to examine children’s informational books on human origins to explore the quality of scientific information and gender representation over time. Scholars in the fields of LIS and Anthropology have noted a lack of critical consideration of children's informational books that deal with science, prehistory and human origins (Carr, 1982; Burtt, 1987; Roveland, 1996; Kiefer & Wilson, 2011; MacDowell & Nappo, 2012). In addition to addressing the noted knowledge gap, exploring information quality and gender representations in these texts accomplishes three goals. First, it brings gender representation in the context of discussions of human origins to light by exploring the social personas, characteristics and behaviors of males and females in children’s informational books. Second, it provides a means to explore implicit and explicit messages present in the texts in regard to gender. Third, it provides a framework for examining the quality of scientific information included in children's informational books on human origins.
origins when quality is defined as currency and consistency with information in contemporary professional literature.

**Significance**

Critical consideration of children’s informational texts is of increasing import in the current educational climate in the United States as Common Core State Standards (CCSS), academic imperatives developed by state education chiefs and governors implemented in schools across the nation, emphasize curriculum focused on nonfiction texts (Common Core State Standards Initiative, 2011). Specifically, CCSS require students to read an increasing percentage of informational resources as they progress through their academic careers (Common Core State Standards Initiative, 2011). The focus of the CCSS on informational texts is regarded as a distinguishing feature resulting in a shift away from the traditional pedagogical practices of reading classical literature (Sutton, 2012).

LIS practitioners have noted the role of school and public libraries as points of access for informational resources needed by students and teachers to fulfill the Common Core literacy standards (Albanese, 2012; Fontichiaro, 2012; Jaeger, 2012; Nesi, 2012). Jager (2012) and Harris (2012) herald school libraries as the most important source of informational texts for students. Recognizing libraries- both school and public- as a primary resource for obtaining informational texts, Fontichiaro (2012) calls for aggressive weeding, organizing, collection development and advertising of libraries’ informational resources to highlight the role of libraries as valuable factual information repositories. Stover (2014) regards amassing and maintaining nonfiction collections that support the CCSS as an “essential” duty of libraries (p. 16). Taken as a whole this literature suggests

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that in light of changing educational standards information professionals will be increasingly called upon to provide informational texts to students and teachers.

In order to develop useful and valid informational text collections it is essential that information professionals evaluate said texts before incorporating them into library collections. Gillian Engberg, the editorial director of books for youth at Booklist, posits that historically the mission of library professionals has been to “get more high-quality books” into the hands of students (Albanese, 2012, p. 3). What constitutes a “high-quality” informational text? Scholars examining issues of quality in children’s informational science books have collectively concluded that information accuracy and an avoidance of stereotypes and bias are essential features of quality texts (Janke & Norton, 1983; Rice, Dudley & Williams, 2001). Weisman (2012) suggests “the increased emphasis on using information books in libraries and classrooms makes it imperative that librarians look beyond the traditional selection criteria” (p. 9).

The present study offers a novel approach to the evaluation of a sub-genre of children’s informational texts in the sciences, tracking both the quality of scientific information and gender representation through time. This research critically evaluates a body of informational texts and suggests a methodological approach to the critique of other sub-genres of children’s informational books. This evaluative approach is of increasing significance when the current publishing market is considered. Moss (2003) estimates that roughly fifty percent of children’s books published annually are nonfiction titles. Additionally, in an interview concerning the emphasis of CCSS on nonfiction, Susan Ballard, president of the American Association of School Librarians, suggested that the CCSS...
emphasis on nonfiction motivates publishing companies to reissue informational books from previous years to bolster the informational text market (Albanese, 2012, p. 2).

The significance of this study goes beyond the contemporary educational policy environment. As alluded to previously, despite a large and growing body of literature focused on the importance of gender representations in children’s literature (Peterson & Lach, 1990; Crabb & Bielawski, 1994; Clark & Higonnet, 2000; Evans & Davies, 2000; Gooden & Gooden, 2001; Clark, et al., 2003; Hamilton, et al., 2006; Worland, 2008; Adams, Walker & O’Connell, 2011; Luyt, Lee & Yong, 2011; Stokes, 2012) evaluations of gender representation in informational books are relatively sparse. Although the study of gender representation and quality of children’s books on human origins is a neglected area of research, other literary genres featuring discussions of human origins have served as the subject of critical evaluation, particularly popular and scholarly literature for adults (Eldredge & Tattersall, 1982; Landau, 1991; Gifford-Gonzalez, 1993; Wiber, 1997; Stoczkowski & Turton, 2002; DePaolo, 2003; Carroll, 2004; Ruddick, 2009). This study is significant in that it highlights the quality of information in nonfiction books on this specific topic, examines the implicit and explicit messages about gender roles represented in this sample, and provides a methodology for evaluating informational books for children.

**Parameters**

This study examined 22 children’s informational books on human origins published in America from 1922 to the present and recommended by the *Children’s Catalog*. Thus, the books under study do not represent the overall population of children’s informational books on human origins, but are a purposefully selected sample.
Definition of Terms

**Quality:** The term quality in this study refers to the alignment of information with contemporaneous scholarly knowledge.

**Anthropology:** “the study of humans, past and present” (American Anthropological Association, 2014).


**Children’s Science Trade book:** non-textbooks, nonfiction texts written for children.
Chapter 2: Literature Review & Theoretical Framework

Introduction

The following literature review discusses scholarly works that influence and provide the theoretical and methodological framework for the present study. Additionally, the review situates this study within a greater but incomplete body of research that has set a precedent for exploring gender representation in children’s literature. The literature of LIS and education concerned with the history, evaluation and critical analysis of children’s informational books will be explored. Specifically, the tradition of evaluation of nonfiction literature within LIS will be considered as it provides the framework for the current process of analysis of children’s informational books within the field. Then, themes in paleoanthropological literature from 1900 to the present will be discussed as this body of literature provides the context from which children’s informational texts on human origins are derived. Interdisciplinary literature focused on the critical evaluation of books on prehistory will be discussed. Finally, an exploration of changing gender politics is included as changing gender ideologies motivate explorations of gender representation in children’s literature and may influence constructions of gender in books.

Theoretical Framework

A Liberal Feminist Framework and a scientific perspective guided this dissertation.

Liberal Feminist Framework

Feminist critique of literary works has been described as a practice identifying the intersection of literature and sociocultural ideologies of gender. The core consideration of a liberal feminist approach to analysis is a focus on the characterization of women and how it is similar or different from the characterization of men (Weedon, 1987). This research
applies the liberal feminist perspective to examine textual and visual representations of gender over time in children's informational books.

*Scientific Perspective*

As children's informational books on human origins are based upon scientific knowledge from the field of paleoanthropology, it was necessary to employ a scientific lens to explore quality in the present study. An analysis of information quality from this perspective, defined in this study as currency and consistency with scholarly knowledge, also allowed this research to note bias within the sample in terms of the scientific information presented.

Scholars working in the natural sciences have examined the modeling of the natural world in that discipline and concluded that such modeling is an interaction of fact and human constructed narrative (Latour & Woolgar, 1979; Fausto-Sterling, 1985; Tuana, 1989; Gould, 1993 & 1996; Wylie, 2007; Stoczkowski & Turton, 2002). To that point, feminist critiques of science identify an ideology of gender inequality that informs and guides the construction of scientific knowledge, influencing all aspects of the scientific process from the research questions to the formulation of scientific models and the interpretation of data (Fausto-Sterling, 1985; Fedigan, 1986; Fedigan & Fedigan, 1989; Harding, 1986; Tuana, 1989; Turner, 1995; Harding, 2006; Wylie, 2007). This research is distinct from feminist criticism that explores science directly as it is employing a feminist framework to structure inquiry into the representation of gender, and as such is a gender-focused study and not a study of the objectivity of the sample.
Methodological Framework

Content Analysis

Berelson (1952) delineates three purposes of content analysis that are directly applicable to the present study: content analysis can be utilized to 1) identify patterns in communication content; 2) track developments of scholarship; 3) explore cultural values embedded in communications. The validity of this approach for the exploration of cultural artifacts of communication within the field of LIS is evident by its employment in a number of studies that have analyzed a variety of content from that of job advertisements to obituaries (Marsh & White, 2003; Zhang & Wildemuth, 2009). Additionally, Bell (2001), Collier (2001), Leeuwen & Jewitt (2001), Marsh & White (2003), Joffe & Yardley (2003) and Krippendorf (2004) describe the utility of content analysis for the exploration of visual images and Spencer (2011) notes that such an analysis of images can be used to explore inherent value systems.

Ways of Seeing

Berger’s (1972) Ways of Seeing provides a methodological means of exploring gender in images as it focuses on the visual representations of social relations. Berger argues that in the fine arts specific social hierarchies and relationships are evident in the placement and manner of depiction of figures within an image. For example, the position of female figures within an image as well as a comparison of the actions of male and female figures within an image can be analyzed as indicators of gender characterization in the sample.
Trends in the Study of Gender Representation in Children’s Literature

Research on gender representation in children's literature is largely regarded as beginning with Weitzman et al.’s, (1972) analysis of women in the titles and central roles of children's books; this research concludes that women are underrepresented. This initial examination of gender in children’s books resulted in a host of similar studies that corroborate Weitzman et al.,’s findings (Stewig & Higgs, 1973; Kolbe & LaVoie, 1981; Barnett, 1986; Fox, 1993; Knowles & Malmkjaer, 1996; Turner-Bowker, 1996; Singh, 1998; Diekman & Murnen, 2004; Hamilton, et al., 2006; Crisp & Hiller, 2011). As a whole research into gender representation in children’s literature has identified two patterns: males are present in children’s books more frequently than females and both genders are usually depicted in a stereotypical manner in line with traditional Western gender ideologies (Tso, 2008; Mattix & Sobolak, 2014). These findings reinforce the idea that children’s books are cultural artifacts and as such reflect societal mores.

Some studies have concluded that since Weitzman et al.’s. (1972) analysis, children's books contain increasingly more equitable representations of males and females (Williams, et al., 1987; Kortenhaus & Demarest, 1993; Oskamp, et al., 1996; Gooden & Gooden, 2001; Diekman & Murnen, 2004; Kok & Findlay, 2006). Still other studies have suggested that gender representation in children’s books is not increasingly equitable but experiences periods of increased gender parity and periods of decreased gender parity (Grauerholz & Pescosolido, 1989; Clark, et al., 1993; McCabe, et al., 2011). McCabe, et al. (2011) suggest that discrepancies in the findings of this corpus of research result from a variety of methodological problems, namely a focus on limited time spans and the almost exclusive derivation of study samples from populations of award-winning books. In addition to the
methodological commonalities noted by McCabe, et al., research in this area focuses almost entirely on children’s fiction.

**Evaluation of Children’s Informational Books and LIS**

*History of the Evaluation of Children’s Informational Books in Library and Information Science (LIS)*

Views of what matters when it comes to the evaluation of children’s informational books have changed over the history of LIS. Effie Power is considered one of the most influential figures in 20th century children’s librarianship and her evaluation schema was equally influential (Kimball, 2012). In *Library Services for Children* Power (1930) devotes over fifty pages to establishing guidelines for the selection and evaluation of children’s books (Power, 1930). While she does not utilize the contemporary terminology “informational books”, she discusses the evaluation of children’s books in the areas of history, biography, civics, travel, science and occupations as distinct from the evaluation of fictional works. Power (1930) emphasizes the importance of accuracy in the evaluation of children’s informational literature. For example: “books of biography may be literary in style but yet need to be tested for adherence to facts” (p. 75). This statement reflects a legacy of adherence to facts central to the evaluation of children’s informational books in LIS.

In the evaluation of science books for children Power (1930) emphasizes accuracy, authority of the author, date of publication, style and format. Power considers both fictionalized and expository accounts of scientific phenomena as valuable as long as the information is accurate and readily digestible by a child reader. Subsequent works in LIS on the evaluation of children’s informational books often incorporate many of the same criteria present in Power (1930), specifically accuracy and author’s expertise.

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An informal survey of evaluation criteria from *Children and Books*, a seminal textbook in LIS, reveals that accuracy has always been a primary focus in the evaluation of children’s informational books. The first three editions of *Children and Books* by May Hill Arbuthnot published from 1947 to 1964 delineate the same five criteria for the evaluation of informational books for children: “scrupulous accuracy\(^1\), convenient presentation, clarity, adequate treatment and style” with accuracy considered the most important. Like Power, Arbuthnot advocates the evaluation of the date of publication of informational materials as well as consideration of an author’s expertise.

Changes to the evaluation criteria of children’s informational books are evident in the fourth and subsequent editions of *Children and Books* edited by Zena Sutherland. The fourth edition (Arbuthnot & Sutherland, 1972) introduces a seven-criteria scheme for evaluation: accuracy, organization and scope, currency, the author’s responsibility, the author’s competence, format and style. The expanded evaluation criteria schema maintains the emphasis on accuracy of the previous schema. This framework also focuses on the importance of generic conventions in informational books for children as indicators of factuality and necessary components of the format of presentations of factual information. A bibliography, chronology, table of contents, index and a writer’s credentials are noted as indicators of accuracy, organization and favorable formatting.

The fourth edition of *Children and Books* also contains criteria for the evaluation of visual elements in informational books. A focus on the visual elements of this genre mirrors trends in children’s informational book publishing as well as highlights the importance of analysis of visual elements in this study.

\(^1\) In Arbuthnot (1964) “scrupulous accuracy” was revised to “accuracy”.

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An analysis of a contemporary publication of the American Library Association on the evaluation of children’s informational books, *Picturing the World: Informational Picture Books for Children*, reveals an evaluation criteria schema that is similar to the historical frameworks discussed above with the addition of emphasis on visual elements: Isaacs (2013) suggests that selecting quality informational books for children requires an evaluation of factual accuracy, engaging subject matter and format and effective use of illustrations. This framework explicitly considers the “visual experience” of an informational book and stresses the utility of visual images to draw readers in and provide insight into real world situations that children may otherwise never experience (p.13).

This review of selected literature in LIS focused on the evaluation of children’s informational books reveals two themes. First, LIS has historically been concerned with the factuality of informational books for children; accuracy is often the first and foremost criterion noted in evaluation guidelines. Second, since the 1970s literature on the evaluation of children’s informational books includes discussions of visual elements. This trend adds merit to this study’s examination of images in the analysis of children’s informational books on human origins.

*Research on Children’s Informational Books in LIS*

As alluded to earlier there is a paucity of critical analysis of children’s informational books within the field of LIS. However, a growing body of research is concerned with the practical utilization of these books as resources for developing information literacy, reading comprehension, organizational and expository writing skills and phonemic awareness, as well as recruiting reluctant readers (Vanek, 1997; Doiron, 2003; Filipenko, 2004; Lickteig, 2005; Trinkle, 2007; Kelsey, 2011; Isaacs, 2013). Kelsey (2011) delineates
the virtues of children’s nonfiction to entice reluctant readers and calls on school librarians
to advocate for the reading and classroom use of informational books. Doiron (2003) notes
the important role of information professionals in promoting literacy and advocates a
balanced approach to utilizing fiction and nonfiction in the interest of promoting the use of
the latter. After a review of research—both within and outside the field of LIS—focused on
the connection between children’s informational books and scholastic achievement,
Loertscher (2007) concludes that librarians should promote informational books and focus
on developing informational book literacy.

LIS researchers have also studied information behavior as it pertains to children’s
informational books. Utilizing a survey method, Vent & Ray (2007) evaluated the attitudes
of elementary school students in regard to nonfiction books in order to develop a list of
library specific strategies to encourage students to read nonfiction. Shenton & Dixon
(2004) observed children utilizing the public library in order to explore the nonfiction
information seeking behavior of juveniles for the practical purpose of developing strategies
to promote effective information seeking behavior.

**LIS Scholarship on Children’s Informational Books**

Several scholars have critically evaluated children’s informational books from an LIS
perspective. Davila (2012) used a socio-cultural lens to analyze children’s nonfiction books
about the Day of the Dead circulated by major midwestern public libraries concluding that
the information in the books is influenced by Western social ideologies. Also exploring
juvenile nonfiction, Kimball (2012) analyzed children’s nonfiction books on the topic of life
in foreign countries in the collections of five midwestern libraries in the early 19th and 20th

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centuries concluding that the collections of small libraries during the period of study mirrored the diversity of larger library systems.

**Scholarship outside of LIS on Children’s Informational Books**

Research from the field of education focuses on the critical evaluation of children’s informational books from a variety of perspectives. Research into the structure of children’s informational books explores the conventions of the genre and their impact on information acquisition (DeGroff, 1990; Tower, 2002; Pappas, 2006 & 2009; Inan, 2010). Additionally, specific subgenres of children’s informational books are the focus of a growing body of critical analysis of children’s literature within the field of education. Several scholars have considered the form and function of children’s informational literature focused on the environment (O’Brien & Stoner, 1987; Raglon, 1993; Pierce & Short, 1994; Kupetz & Twiest, 2000; Meyer, 2002). May et al. (2010) analyze children’s informational books about Barack Obama concluding that as the texts employ the generic conventions of informational books they are often perceived as neutral factual accounts, but in actuality they are biased accounts that promote specific sociocultural ideologies. Similarly, McCallum & Stephens (2011) critically evaluate the ideologies of *narrative discourse*—the creation of stories in which social values and attitudes are encoded and imparted—in three children’s informational picture books concluding that although the books are written as factual accounts they promote ideologies that conform to accepted societal norms (McCallum & Stephens, 2011).

**A Historical Overview of Paleoanthropological Literature from 1900 to the Present**

This section will explore historical trends in the scientific literature of the field of paleoanthropology, a sub-field of anthropology concerned with the study of human origins.

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This canon of literature has been defined as an interpretive framework in which anthropologists systematically explore questions about the evolutionary history of the human species based upon the facts available in the form of anthropological data, such as fossils and ethnographic data (Wiber, 1997; Ward, 2003). This review focuses on paradigmatic changes and describes prominent models of human evolution from 1900 to the present. This is not an exhaustive evaluation of the scientific literature; rather it is an examination of overarching trends in the literature with the aim of identifying the landscape of scientific knowledge from which the study sample is derived.

*Early Paleoanthropological Research: 1900s-1950*

As a whole early research in paleoanthropology has been characterized as descriptive anatomy focused on the detailed depiction and categorization of fossil remains with the aim of answering the questions: How did modern humans evolve and how do modern humans compare to primate ancestors? (Zihlman, 1997; Ward, 2003; Henke, 2007). Boule's (1911, 1912 & 1913) seminal works in the field of paleoanthropology serve as an exemplar of this research paradigm as a series of detailed anatomical accounts of the analysis of Neanderthal skeletal remains from La Chapelle-aux-Saints that compares the skeletal structure of the remains to that of modern humans (Henke, 2007; Goodrum, 2009).

Improvements to fieldwork and increased sponsorship of expeditions by scientific institutions between 1920 and 1930 resulted in several influential fossil discoveries, prompting research that is a departure from earlier studies that relied on interpretations of a small number of hominoid fossil remains (Zihlman, 1997; Henke, 2007; Manzi, 2011). A series of discoveries in Africa during the 1920s led to debates on the geographical location of the origins of human kind, originally thought to be Asia after Eugene Dubois' discovery of...
Pithecanthropus in Java, Indonesia (Leakey & Goodall, 1969). Additionally, the discovery of an influential group of fossils at Zhoukoudian during this period suggested early humans used fire, occupied caves and practiced cannibalism (Black, 1926; Keith, 1929; Barbour, 1930; Moir, 1932; Weidenreich, 1935).

As in previous decades, elucidating the evolutionary path of the modern human was at the forefront of the literature of the 1930s and 1940s (Manzi, 2011). Researchers of this period utilized a descriptive and comparative anatomy framework to discuss issues of race while developing models of human origins and racial typographies that meld scientific data with social commentary (Weidenreich, 1940, 1943, 1947; Howells, 1942, 1944; Barkan, 1992). An exemplar of this research, *Up From the Ape* by Hooton (1931) is a description of the anatomical characteristics of the “primary races” that provides a racial typography (p. 581).

Additionally, primatology played a formative and continuing role in the field of paleoanthropology as early comparative studies of primate and human morphology influenced many human origins scenarios of the late 1800s and early 1900s and primate behavioral studies influenced contemporary models of the evolution of human behavior (Huxley, 1870; Schultz, 1944; Hooton, 1942; DeVore, 1965).

As a whole paleoanthropological research of the early 1900s reconstructs evolutionary paths through the description of fossils and the study of comparative anatomy (Zihlman, 1997; Henke, 2007). Research of this period also explores the evolution of human culture through interpretations of archeological data and primate studies. Paleoanthropological research of the 1930s and 1940s focused on the evolution of human races melds scientific data with discussions of socio-cultural ideologies. This body of

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literature offers a variety of interpretations of the fossil record with the unified goal of
describing a distinct path of human evolution and differentiating modern humans from
archaic primates.

*Man the Hunter: Models of Human Evolution from the 1950s to the 1970s*

A paradigm shift in paleoanthropological research occurred in the mid-1950s that
resulted in a transition from a descriptive anatomy approach to research to an explanatory
approach (Popper, 1968; Tattersall, 2000; Goodrum, 2009). Sherman Washburn has been
widely credited with introducing an influential research framework that rejects descriptive
anatomy in favor of focusing on adaptations (Zihlman, 1997; Cartmill, 1998; Hawks &
Wolpoff, 2003; Henke, 2007). Subsequent models of human origins developed using the
adaption framework are collectively referred to as Man the Hunter models (Fedigan, 1986;

Man the Hunter formulations originated in the 1950s, 1960s and 1970s when
researchers such as Sherman Washburn, Richard B. Lee, Irven DeVore and Desmond Morris
and Raymond Dart popularized conceptions of human nature that posit that human
characteristics, such as intelligence and language, evolved as the result of a lifestyle based
on hunting and that human social, morphological and technological innovation are the
product of the acquisition and consumption of meat (Fedigan, 1986; Hager, 1997; Zihlman,
1997; Sussman, 1999).

Washburn & Avis (1958) combined nonhuman primate research and the analysis of
fossil hominins to conclude that hunting was a central activity in early human life and had a
profound impact on human nature. Similarly, Washburn & Lancaster (1968) posit that all
human characteristics are the result of adaptations necessary for hunting. Drawing on

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ethnographic information from a variety of peoples (including the Xavante of Brazil) and fossil data, Laughlin (1968) concludes that the unique physical characteristics of humans are the product of a hunting lifestyle.

Desmond Morris popularized Man the Hunter narratives of human evolution in the 1960s with the publication of *The Naked Ape*, which describes a social and sexualized version of the model. For Morris, the loss of body hair and numerous other traits unique to humans, serve to enhance human sexuality prompting and supporting pair bonds and social cooperation. The pair bond served to reduce intra-group rivalries between males and promote parental investment in childcare as men left women and children in camps and formed cooperative hunting bands (Morris, 1967).

Though women are specifically mentioned within Morris’ model the nature of their role in early hominin life is passive. Males actively engage in hunting, forming socially cooperative groups and providing for women and children. Women are passive entities acted upon by males and evolution. The sensual nature of Morris’ model underscores the passive role of women by discussing the distinctly human characteristics of loss of estrus and continuous receptivity as evolved characteristics that cement a pair bond essentially attaching an active male to a passive female. With the dichotomy between the active male and passive female dominating Morris’ model a sexual division of labor is almost non-existent; males are laboring and females are acting as beneficiaries of male labor that offer sexual gratification and offspring in return for meat.

Critiques of Man the Hunter models note a conspicuous lack of women and suggest that when women are mentioned they are often relegated to a minor role in subsistence
practices (Fedigan, 1986; Haraway, 1989; Hager, 1997; Zihlman, 1997; Wiber, 1997; Sussman, 1999).

*Woman the Gatherer: Models of Human Origins in the 1970s*

By the 1970s criticism of the Man the Hunter model of human origins resulted in the formulation of new models of human evolution collectively referred to as Woman the Gatherer models that are products of feminist scholarship and locate females in prehistory (Haraway, 1989; Wiber, 1997).

Many of these models relied heavily on ethnographic data. Ethnographic research on the !Kung of southern Africa highlighted the active and skilled labor of females in subsistence practices (Lee, 1972 & 1979; Draper, 1975 & 1976). Similarly, Slocum (1975) posits a model of human origins that focuses on women's foraging activities in *Woman the Gatherer: Male Bias in Anthropology*. Incorporating ethnographic, fossil and primate data, Zihlman and Tanner (1974) focused on locating females in the early human social landscape.

Other researchers attempted to integrate both men and women into formulations of the evolution of human behavior. A model of early hominin life and behavior that took such an approach is present in *Carrying and Sharing in Human Evolution* by Lancaster (1978) that built on previous research by Gordon Hewes (1961). The impetus for the model is the evolution of bipedality, which is heralded as the spark for the development of all other human characteristics (Lancaster, 1978). Bipedality frees the hands for transport of objects—in this model food and other resources—as opposed to weapons in models that assume a more aggressive human nature (Lancaster, 1978).

*Research on Human Origins in the 1980 and 1990s: Divergent Research Paradigms*

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Overt rejection of Man the Hunter models in the 1970s led to the proliferation of research paradigms in paleoanthropology in the 1980s and 1990s (Wiber, 1997; Zihlman, 1997). Two trends in the research of this period can be identified. First, a continuing focus on locating women in models of human evolution is apparent. Scholars drew on primate data to explore sex-stereotypes and ask questions about human nature and ethnographic data to locate women in prehistory (Dahlberg, 1981; Estioko-Griffin & Griffin, 1981; Shostak, 1981; Tanner, 1981; Fedigan, 1982; Peacock, 1985; Smuts, 1985; Strum, 1987; Small, 1993). Second, scholars turned their attention to the critical analysis of the likelihood of hunting as a prominent feature of human evolution, as suggested by Man the Hunter formulations, producing models that focus on scavenging as an important subsistence behavior (Binford, 1981; Bunn, 1981; Potts, 1984; Brain, 1985; Shipman, 1986; Klein, 1987; Tappen, 1995; Speth & Tchernov, 1998).

A seminal article from this period of research, Owen Lovejoy’s “The Origin of Man” (1981) is a reimaging of the Man the Hunter model that incorporates gathering but maintains the position of males as sole actor and procurer of sustenance (Wiber, 1997; Zihlman, 1997). Bipedality provides the basis for this model in which males are mobile, bringing food to females rendered immobile by child-bearing and child-rearing demands (Lovejoy, 1981). As seen in Morris’ model a pair bond is the mechanism by which Lovejoy’s model is maintained and is considered a driving force of the development of the nuclear family (Lovejoy, 1981). Also akin to Morris, Lovejoy views the continual sexual receptivity of females and loss of estrus as developments that strengthen the monogamous mating system of humans (Lovejoy, 1981).
The contemporary approach to paleoanthropological research is interdisciplinary in nature drawing on theories and techniques from biology, archeology, primatology and a number of others fields and enhanced by the introduction of novel technological means of data analysis and interpretation (Henke, 2007; Goodrum, 2009). Advances in genetics, phylogeny, cladistics, skeletal biology and geology have created a variety of avenues of inquiry into human origins resulting in a tremendously varied body of contemporary literature (Hawks & Wolpoff, 2003; Ward, 2003).

**Children’s Books about Prehistory**

MacDowell and Nappo (2012) explored a connection between the content of children’s informational books on evolution found in public library collections from 1863 to 1956 and the Scopes Monkey Trial. Books on evolution recommended by 16 bibliographic guides during the time period under consideration were read and categorized as primarily discussing human evolution, alluding to evolution or failing to mention evolution explicitly. The number of books in each category available on Midwestern library shelves before, during and after the trial was tabulated. Findings indicate that the social controversy surrounding the trial and the topic of evolution had an impact on children’s collections in libraries during the period of inquiry. Specifically, following the trial Midwestern library collections contained fewer children’s books that affirm evolution. The study’s authors contend that these findings indicate the study of library collections can provide information on the history of American culture. Pertinent to the present study, the findings also suggest that sociopolitical ideologies impact the publishing, content and collection of children’s informational books.
Scholars in the field of anthropology have also critically evaluated children’s informational texts on a variety of topics. Galanidou (2007) analyzed the imagery and text of children’s informational books on Paleolithic life published, primarily in Europe, between 1979 and 2005 contending that the books reflect the socio-cultural context in which they are produced. Specifically, Galanidou posits the text and images of these books describe Paleolithic life in a way that is consistent with Western gender and age roles. Additionally, Galanidou concludes that the sample as a whole presents a male-centric consideration on Paleolithic life, reducing descriptions of Paleolithic life to a few stereotypical gender-based activity associations.

Using content analysis, Binant (2007) compared the content of a version of a children’s informational book on prehistory produced by an author to a publisher-edited version of the same book finding that the publisher-edited versions of a book contain non-neutral changes that alter the scientific information disseminated to the reader. These findings imply that the publication process influences the content of and information disseminated by children’s books.

Also employing content analysis, Roveland (1993) surveyed American juvenile fiction on the Stone Age with child protagonists concluding that Western gender stereotypes are reflected in the books. Similarly, following an analysis of children’s archaeology books published in the 1970s and 1980s, Burtt (1987) posits that “children are more likely to come face to face with contemporary values and attitudes” than information about the past when they read books of this genre (p.8).

Taken as a whole these findings shaped the conceptualization of the present study by indicating that children’s informational books on prehistory are cultural artifacts.
influenced by the sociopolitical climate in which they are produced. This study will expand this understanding by exploring constructions of prehistory in children’s books published in America during the early 20th and 21st centuries.

**Adult Literature about Prehistory**

A brief discussion of the research that critiques literature intended for an adult audience based upon paleoanthropological research is necessary as this body of work also informs the present study. In his critical comparison of the information presented in twelve popular works of prehistoric fiction—fictional literary works about prehistoric humans—with contemporaneous scholarly paleoanthropological literature, De Paolo (2003) concludes that a majority of the fiction is not factually aligned with the scholarly research (De Paolo, 2003). Carroll (2004) employed an adaptationist literary framework to evaluate a prehistoric fiction text—*The Clan of the Cave Bear* by Auel—concluding that the text juxtaposed contemporary ideologies on the prehistoric landscape of the story. Similarly, in his critique of several works of prehistoric fiction, Ruddick (2009) concludes that a majority of the literature reflects contemporary societal ideologies. For example, Ruddick (2009) posits that the feminist movement of the 1960s-1970s that influenced the scholarly pursuits of paleoanthropology resulted in prehistoric fiction that presented narratives influenced by changing gender paradigms.

In addition to the literary analysis outlined above, a body of research in anthropology is focused on the critical analysis of nonfiction literature—both scholarly and popular—based on paleoanthropological research. Eldredge & Tattersall (1982) suggest that paleoanthropologists knowingly incorporate literary aspects into their development of models of human evolution. The authors assert that this is the inclusion of the subjective in

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what should be objective scientific literature. Following an analysis and comparison of
scholarly models of human evolution published from 1820 to 1986, Stoczkowski & Turton
(2002) conclude that there exist standard conventions and images in scientific models of
humans. They further contend that the models follow a narrative format and are the
products of imagination influenced by the conventions of histories of the origin of humans
and human culture developed by philosophers and scientists in the 18th century. In other
words, Stoczkowski & Turton suggest that paleoanthropologists unconsciously develop
models of human evolution that conform to pre-existing conceptions of the origins of
modern humans developed in the eighteenth century. Akin to Stoczkowski & Turton,
Landau (1991) posits models of human origins developed in the work of British and
American scientists of the twentieth century follow the conventions of European folktales.
The author considers the adherence to narrative conventions to be a product of the human
tendency to impose a narrative framework on observations.

Turning attention to the critical analysis of visual images popularized in works of
nonfiction based on paleoanthropology research, Wiber (1997) posits popularized human
origins illustrations contain biased gender and racial representations based upon Western
cultural ideologies. Also, focusing on the critical analysis of visual elements of popular
nonfiction literature on human evolution, Gifford-Gonzalez (1993) concludes that
popularized visuals of human origins “make antique and culturally specific assertions
about the gendered nature [of] work and social roles” (p. 38).

As a whole this research validates the need to critically explore literature for
children based upon paleoanthropological research and informs the current study. The
work of Wiber and Gifford-Gonzalez also highlights the importance of exploring the images of the books as well as the text.

**Brief History of Gender Politics in America from 1920 to the Present**

Gender ideologies have changed over time in the United States resulting in shifting perspectives on the roles of males and females in society. These shifts are largely the result of various feminist movements that have taken place in the United States beginning in the late 1800s. A discussion of gender ideology in the 1920s requires a consideration of the first wave of feminism that was focused on securing the right to vote and other social rights for women and culminated in the passage of the 19th Amendment in 1920. Many suffragettes are characterized as championing the idea of the “new woman” that rejected traditional gender roles and encouraged sexual, economic and individual freedom for women (Dodd, 2013). These ideals carried on after the passage of the 19th Amendment leading to a period of increased sexual freedom and challenges to traditional gender roles during the early 1920s (Freedman, 1974).

However, beginning in the 1930s the Great Depression led to a rejection of “new woman” philosophies and a return to traditional gender ideologies (Deutsch, 1994). Scarcity of employment during this period led to the vilification of women who rejected traditional gender roles and worked outside the home (Freedman, 1974; Faludi, 1991; Deutsch, 1994). Even though women were encouraged to enter the wartime workforce in the 1940s they were expected to contribute only to the war effort then return to the home post-conflict (Faludi, 1991). Gender traditionalism and active rejection of feminist ideals persisted well into the 1960s (Faludi, 1991).
The period of gender traditionalism between 1930 and 1960 was followed by a resurgence of feminist activism in the 1960s that culminated in the second wave of feminism in the 1970s (Chafe, 1994). Another period of antifeminist sentiment challenged the progress of second wave feminism in the 1980s (Davis, 1991). However, continuing activism lead to the third wave of the women's movement in the mid-1990s, an activist movement that continues today.

Scholars have labeled periods of rejection of feminist ideals and return to traditional gender ideologies as “backlash” and note that it is a recurring feature of the feminist movement in the United States (Walby, 1993). Backlash suggests that changes to gender ideologies in America have not been a process of linear advancement of gender equality but rather a process of ebb and flow.
Chapter 3: Research Methods and Design

Research Questions

The primary research question for this study is: How are human origins represented in children’s expository texts?

Secondary research inquiries include:

1) To what extent do these books mirror paleoanthropological thought at particular points in time?

2) How have representations of human origins in children’s informational books changed over time?

3) How are men and women characterized in these books?
   a. Is there a relationship between gender and presence in various settings?
   b. Is there a relationship between gender and activity?
   c. Is there a relationship between gender and social groupings?
   d. Are males and females depicted in the same manner in the illustrations as in the texts of these books?

Sample

Images and texts from a sample of twenty-two children’s informational books recommended by the Children’s Catalog from 1922 to the present comprise the study sample (Appendix A). The scope of this project includes children’s informational literature published in America from 1922 to the present that features discussions of human origins intended for preschool through sixth grade audiences. Although informational books intended for children that feature human origins existed prior to 1922, the publication of The Story of Mankind in 1922 marks a pivotal point in the history of
children’s informational book publishing as it was the first text on the subject to receive an award and subsequent widespread circulation (MacDowell & Nappo, 2012). Thus, The Story of Mankind is used as a limiting factor in terms of developing the parameters of the study sample. Additionally, the most contemporary book on human origins recommended by the Children’s Catalog at the time the study sample was amassed was published in 2011, this created the upper bounds of the sample.

To identify books for analysis, the print and online manifestations of the Children’s Catalog were consulted. Librarians, teachers and other practitioners have traditionally used the Children’s Catalog for collection development and book recommendations (Harrington, 1993; MacDowell & Nappo, 2012). First published in 1909, the explicit objective of the Children’s Catalog is to compile an up-to-date list of books of demonstrated usefulness intended for children in preschool through sixth grade selected by library and education professionals (10th & 15th editions H. W. Wilson Company, 1961; Isaacson, et al., 1986). The Children’s Catalog is intended to serve as a purchasing, cataloguing, reference, collection development and library education aide (Isaacson, et al., 1986). Thus, utilization of the Children’s Catalog allowed for the development of a purposeful sample of texts likely to have been or be part of public and school library collections. The goal of amassing this purposeful sample was to insure that generalizations reflect the range of books on human origins previously or currently found on library shelves to situate the research within the field of LIS.

2 The Children’s Catalog changed its name to the Children’s Core Collection in 2013 and is available at http://www.hwwilsoninprint.com/child_core.php. A search of the Children’s Core Collection was conducted as part of the process of amassing the study sample.

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Search strategies included keyword and subject searching. Due to inconsistencies in cataloguing from 1922 to the present several search terms informed by considerations of keyword and subject listings in the Children’s Catalog were used: Man, Man Prehistoric, Ancient Man, Archeology, Cave Dwellers, Evolution, Prehistoric Man, Early Humans, Prehistoric Humankind, Physical Anthropology, and Organic Evolution of Man.

Following the search of the Children’s Catalog a search of Amazon, Barnes & Noble’s Online, Google Books and bibliographic guides was conducted to verify that the sample amassed was representative of the total body of children’s informational books published on the topic from 1922 to the present. Comparison of the search results revealed that the Children’s Catalog recommendations reflect the limited coverage of human origins available in juvenile literature. The National Science Teachers Association identifies the paucity of books on human evolution as a gap in children’s informational science literature (National Science Teachers Association, 2014). The limited publication of children’s books on the topic of human evolution may reflect the controversial nature of the topic (Berkman & Pultzer, 2010; MacDowell & Nappo, 2012, National Science Teachers Association, 2014).

The sample size of the present study (n= 22) is consistent with that of previously conducted content analysis research studies of children’s literature by Arango (1995; n=38), Poling & Hupp (2008; n=24), Brady (2009; n=38), Bickford (2013; n=33) and Fitzpatrick & Kostina-Ritchey (2012; n=24).

Limitations of the present analysis lie in the specificity of the sample. Due to restrictions in terms of access to texts that are no longer in publication, some titles recommended by the Children’s Catalog could not be obtained for analysis. The data set is
weak in publications from the 1990s as the *Children’s Catalog* does not contain recommendations for books on human origins during that period.

**Instrumentation**

The three data collection documents used in this study facilitated content analysis by providing a framework for systematically recording, identifying and organizing data. Validity of the measurements used in the study instruments was achieved through a pilot reading of the sample texts that informed coding category development and through alignment with previously conducted research that explored similar constructs in children’s books (See Weitzman, et al., 1972; Segel, 1982; Williams, et al., 1987; Clark et al., 1993; Hamilton et al., 2006; Clark, et al., 2003; Crisp & Hiller, 2011; Sigalow & Fox, 2014)

**Appendix C**, *Quality Assessment Content Analysis Protocol*, was developed with the aim of exploring the quality of the sample within the context of contemporaneous scholarly resources.

**Appendix D**, *Textual Gender Representation Analysis Protocol*, was constructed to explore whether or not there are differences between males and females in terms of the types of settings in which individuals appear, with whom individuals appear and the types of activities with which individuals are associated within the texts of the sample books.

Akin to Appendix D, **Appendix E**, *Visual Gender Representation Analysis Protocol*, was constructed to explore whether or not there are differences between males and females in terms of the types of settings in which individuals appear, with whom individuals appear and the types of activities with which individuals are associated in the sample books.
Data Collection & Coding

Data collection via content analysis for this study was undertaken in two parts. First, to ascertain the quality of the information contained in the sample texts the document in Appendix C was used to collect data from each sample book and scholarly source in seven categories: 1) geographical location of human origins, 2) date, 3) fossils & archeological sites, 4) distinguishing features of humans, 5) human lineage, 6) cannibalism and 7) races. The information collected from the sample books was compared to that collected from the professional sources in order to assess quality of information (see Appendix B for a list of the scholarly sources).

The professional literature used for comparison is written and/or edited by scholars working in the field of paleoanthropology to communicate research findings and scholarly ideas to non-professionals. The professional source sample includes fourteen texts penned and edited by scholars intended to disseminate paleoanthropological knowledge to popular audiences and three introductory textbooks on human origins also designed to offer an overview of paleoanthropological knowledge.

As quality for the purposes of this study is defined as currency and consistency with contemporaneous scholarly knowledge, the information on each of the seven previously identified categories contained in the professional literature sample was compared to the information contained in contemporaneous children’s books in the study sample. Information contained in the children’s books is considered accurate if it mirrors the information available in the contemporaneous professional literature.

Second, to explore gender representations in the sample each occurrence of an individual of identifiable sex in both the texts and images of the books was recorded on the
instruments in Appendices D & E. For each distinct appearance of an individual of identifiable sex, the data collection instruments identified with whom the individual appears (ie. social grouping), the specific setting of each appearance (ie. cave, open landscape, etc.) and the type of activity being performed. For images of individuals of identifiable sex position in the frame, posture and state of motion were also recorded.

Data Analysis

Methods of data analysis include descriptive statistics and binomial distribution probability calculations using an alpha level of 0.05. Descriptive statistics were used to compare and contrast means, ratios and percentages of female representation with male representation. Descriptive statistics were also used to explore gender representation through time. Binomial distribution probabilities were used to compare the frequency of occurrences of males to that of females in the text and images of the sample.

Data on gender representation was also categorized by time periods in order to facilitate an analysis of gender representation over time. The time periods that served as units of analysis are as follows: 1920 to 1949, 1950 to 1979 and 1980 to 2011. These time periods reflect changes in sociopolitical gender ideologies identified in previously conducted research of children’s literature (Grauerholz & Pescosolido, 1989; Clark, et al., 1993; McCabe, et al., 2011) and changing research paradigms in paleoanthropology (Haraway, 1989; Zihlman, 1997; Ward, 2003).
Chapter Four: Results

Introduction

This chapter discusses the results of the content analysis performed on 22 children’s informational books on human origins published from 1922 to the present. The chapter is divided into two parts. Part one describes the sample books and the data focused on the assessment of quality. Part two provides an overview of the data related to gender representation. Descriptive statistics and binomial distribution probabilities provide quantitative indicators of gender representation and quality. All significance tests used an alpha level of 0.05.

Part One: Quality Assessment

Quality analysis of the sample focused on six content areas.

Sample Characteristics

Eleven (50%) of the sample books are authored by females, eight (36%) by males and three (14%) by male and female co-authors.

Of note is that the inclusion of specific information greatly varied across the sample; several books lack a discussion of the content areas under consideration. All sample books published prior to 1941 lack specific discussions of at least three of the content areas. Books published prior to 1940 generally lack specific information on the fact-based content areas—geographical origin and date of the first hominins’ presence on Earth—while books published after 1940 generally include specific information. Five (71%) of the seven sample books published prior to 1941 lack a specific stance on the geographical location of the origins of humankind, while three (20%) of the fifteen books published after 1941 lack a definite geographical origin. None of the sample books published prior to 1940 provide a
time frame for the appearance of the first hominins on Earth. One book (SB11) published after 1940 lacks a specific date. Unlike the children's books, the professional literature consulted consistently provides information on the geographical origin and date of the first hominins presence on Earth. The earliest professional sources consulted provided specific time frames and/or numerical estimates for dates.

Author Authority

Eleven (50%) of the sample texts lack acknowledgement of any expert consultants and do not have a bibliography. The remaining eleven (50%) texts formally acknowledge expert consultants and/or contain a bibliography. Texts relying on scholarly consult and including citations for source material are distributed throughout the temporal range of the sample.

Origin

Fourteen (64%) of the sample texts identify a geographical location as the location of the origins of hominins. All of the origins listed in these texts correspond to the geographical locations considered to be the birthplace of humankind in contemporaneous scholarly literature (see Appendix B for a list of the scholarly sources consulted for the quality comparison and Table 1 for the quality comparison data). In other words, there is a 100% correspondence between the origin information provided in the sample and contemporaneous knowledge. What’s more, 65% of these books acknowledge an on-going debate in the field of paleoanthropology as to the geographical origins of hominins. This consideration of multiple viewpoints mirrors the on-going scholarly debate as to the geographical origins of humankind (Lahr & Foley, 1998). As a whole the sample adheres to the scholarly literature for this content category.

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Table 1: Geographical Origins of Humankind Quality Comparison Data

<table>
<thead>
<tr>
<th>Sample Books</th>
<th>Geographical Origins of Humankind</th>
<th>Professional Literature</th>
<th>Geographical Origins of Humankind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyday Life in the Old Stone Age (1922)</td>
<td>----</td>
<td><em>The Antiquity of Man</em></td>
<td>Asia</td>
</tr>
<tr>
<td>(1922)</td>
<td></td>
<td><em>Keith (1925)</em></td>
<td></td>
</tr>
<tr>
<td>The Story of Mankind (1922)</td>
<td>Africa</td>
<td><em>Man Rises to Parnassus</em></td>
<td>Asia</td>
</tr>
<tr>
<td>Man Before History: a Short Account of Prehistoric</td>
<td>--</td>
<td><em>The Study of Man: An Introduction</em></td>
<td>Asia</td>
</tr>
<tr>
<td>Times (1924)</td>
<td></td>
<td><em>Linton (1936)</em></td>
<td></td>
</tr>
<tr>
<td>The Child’s Story of the Human Race (1924)</td>
<td>Asia</td>
<td><em>Men of the Old Stone Age: Their Environment, Life and Art</em></td>
<td>Asia</td>
</tr>
<tr>
<td>(1924)</td>
<td></td>
<td><em>Osborn (1936)</em></td>
<td></td>
</tr>
<tr>
<td>The Early Story of Mankind (1929)</td>
<td>--</td>
<td><em>Mankind So Far</em></td>
<td>Asia (considers Africa)</td>
</tr>
<tr>
<td>In the Beginning: A First History for Little</td>
<td>--</td>
<td><em>Up From the Ape</em></td>
<td>Africa &amp; Asia</td>
</tr>
<tr>
<td>Children (1929)</td>
<td></td>
<td><em>Hooton (1946)</em></td>
<td></td>
</tr>
<tr>
<td>Ancient Times: A History of the Early World</td>
<td>--</td>
<td><em>Prehistoric Man</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1935)</td>
<td></td>
<td><em>Augusta &amp; Burian (1960)</em></td>
<td></td>
</tr>
<tr>
<td>Man’s First Million Years (1941)</td>
<td>Asia</td>
<td><em>African genesis: A personal investigation into the animal origins and nature of man</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1941)</td>
<td></td>
<td><em>Ardrey (1961)</em></td>
<td></td>
</tr>
<tr>
<td>The Story of Our Ancestors (1955)</td>
<td>Africa</td>
<td><em>Ideas on Human Evolution</em></td>
<td>Africa</td>
</tr>
<tr>
<td>Prehistoric Man and the Primates (1957)</td>
<td>--</td>
<td><em>Mankind in the Making</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1957)</td>
<td></td>
<td><em>Howells (1967)</em></td>
<td></td>
</tr>
<tr>
<td>The First People in the World (1958)</td>
<td>--</td>
<td><em>Human Variation and Origins</em></td>
<td>Africa</td>
</tr>
<tr>
<td>Man in the Making (1960)</td>
<td>--</td>
<td><em>The Emergence of Man</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1960)</td>
<td></td>
<td><em>Pfeiffer (1969)</em></td>
<td></td>
</tr>
<tr>
<td>Early Man (1968)</td>
<td>Africa &amp; Asia</td>
<td><em>Human Ancestors: Readings from Scientific American</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1968)</td>
<td></td>
<td><em>Isaac &amp; Leakey (1979)</em></td>
<td></td>
</tr>
<tr>
<td>The First Men (1968)</td>
<td>Africa</td>
<td><em>On Becoming Human</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1968)</td>
<td></td>
<td><em>Tanner (1981)</em></td>
<td></td>
</tr>
<tr>
<td>The Origins of Man (1969)</td>
<td>Africa</td>
<td><em>Prehistoric Times: Readings from Scientific American</em></td>
<td>Africa</td>
</tr>
<tr>
<td>People of the Ice Age (1973)</td>
<td>Africa</td>
<td><em>The Emergence of Humankind</em></td>
<td>Africa</td>
</tr>
<tr>
<td>(1973)</td>
<td></td>
<td><em>Pfeiffer &amp; Pfeiffer (1985)</em></td>
<td></td>
</tr>
<tr>
<td>Early Humans (1989)</td>
<td>Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lucy Long Ago: Uncovering the Mystery of Where We</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Came From (2009)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring the Past (2011)</td>
<td>Africa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Date

Fourteen (64%) of the sample texts provide a numerical date for the presence of the first hominins\(^3\) on Earth (Table 2). One text published in 1922, *The Story of Mankind* by H. W. Van Loon, states only that hominins were present on Earth for “over a million years” (p.8). Save the above-mentioned title, none of the books published prior to 1941 provide information on the date of the first appearance of hominins. This is inconsistent with the scholarly sources; the scholarly works from the 1920s to the 1940s are consistent in providing an estimate of the time period in which the first hominins were present on Earth.

The sample books that do contain a date for the first hominins are consistent with their scholarly contemporaries from the 1940s to the 1950s. Sample books published in the 1960s contain discrepancies. *Early Man* by F. C. Howell and *The First Men* by J. May were both published in 1968; *Early Man* states a date of one million years ago for the first appearance of hominins, while *The First Men* states a date of two million years ago. This discrepancy mirrors a transition noticeable in contemporaneous scholarly literature. The scholarly texts of the early 1960s (Howells, 1962 & 1967; Augusta & Burian, 1960) posit a date of one million years ago for the first appearance of hominins, while the literature of the late 1960s (Pfeiffer, 1969) discusses fossil discoveries dating to more than two million years ago. The sample books reflect this transition with *The First Men* containing the most up to date information. All sample books published after 1970 and containing a date for the initial presence of hominins on Earth are aligned with contemporaneous scholarly sources.

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\(^3\) The term “hominins” is used to denote any discussions of all species or genera *Homo* and *Australopithecus* in the sample books identified as the earliest ancestors of modern humans. The terms and species names vary by sample book.

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### Table 2: Date of Origins Quality Comparison Data

<table>
<thead>
<tr>
<th>Sample Books</th>
<th>Date of First Hominins</th>
<th>Professional Literature</th>
<th>Date of First Hominins</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Everyday Life in the Old Stone Age</em> (1922)</td>
<td>---</td>
<td><em>The Antiquity of Man</em> Keith (1925)</td>
<td>Late Pliocene</td>
</tr>
<tr>
<td><em>The Story of Mankind</em> (1922)</td>
<td>&quot;millions of years ago&quot;</td>
<td><em>Man Rises to Parnassus</em> Osborn (1928)</td>
<td>&quot;over 1 mya&quot;</td>
</tr>
<tr>
<td><em>Man Before History: A Short Account of Prehistoric Times</em> (1924)</td>
<td>---</td>
<td><em>The Study of Man: An Introduction</em> Linton (1936)</td>
<td>Miocene</td>
</tr>
<tr>
<td><em>The Child’s Story of the Human Race</em> (1924)</td>
<td>---</td>
<td><em>Men of the Old Stone Age: Their Environment, Life and Art</em> Osborn (1936)</td>
<td>Pleistocene</td>
</tr>
<tr>
<td><em>The Early Story of Mankind</em> (1929)</td>
<td>---</td>
<td><em>Mankind So Far</em> Howells (1944)</td>
<td>1 mya</td>
</tr>
<tr>
<td><em>In the Beginning: A First History for Little Children</em> (1929)</td>
<td>---</td>
<td><em>Up From the Ape</em> Hooton (1946)</td>
<td>Late Pliocene</td>
</tr>
<tr>
<td><em>Man’s First Million Years</em> (1941)</td>
<td>1 mya</td>
<td><em>African Genesis: A Personal Investigation into the Animal Origins and Nature of Man</em> Ardrey (1961)</td>
<td>1 mya</td>
</tr>
<tr>
<td><em>Man in the Making</em> (1960)</td>
<td>1 mya</td>
<td><em>The Emergence of Man</em> Pfeiffer (1969)</td>
<td>4-5 mya</td>
</tr>
<tr>
<td><em>Early Man</em> (1968)</td>
<td>1 mya</td>
<td><em>Human Ancestors: Readings from Scientific American</em> Isaac &amp; Leakey (1979)</td>
<td>3 mya</td>
</tr>
<tr>
<td><em>People of the Ice Age</em> (1973)</td>
<td>2 mya</td>
<td><em>The Emergence of Humankind</em> Pfeiffer &amp; Pfeiffer (1985)</td>
<td>4-5 mya</td>
</tr>
<tr>
<td><em>Hominids: A Look Back at Our Ancestors</em> (1988)</td>
<td>4.5 mya</td>
<td><em>Understanding Human Evolution</em> Poirier &amp; McKee (1999)</td>
<td>2.4 mya</td>
</tr>
<tr>
<td><em>Early Humans</em> (1989)</td>
<td>4-1 mya</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Early Humans</em> (2000)</td>
<td>4 mya</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Lucy Long Ago: Uncovering the Mystery of Where We Came From</em> (2009)</td>
<td>3.5 mya</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Exploring the Past</em> (2011)</td>
<td>2-3 mya</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fossils and Archeological Sites**

Of the 22 sample books, 17 (77%) books mention specific fossils and archeological sites by name. Of the five books that do not consider specific fossils or sites four were...
published in the 1920s. Across the sub-sample of books that discuss specific fossils and sites the number of sites and specific fossils mentioned varies greatly from one to twenty-nine. Compared to contemporaneous scholarly literature these books consistently mention fossils and sites that are featured in scholarly works but do not include all of the fossils and sites mentioned in the professional literature. This is most likely a reflection of the intended audience of the sample books.

The Piltdown skull offers an interesting case study in the context of exploring scientific relevance of the sample. The Piltdown fossils discovered in the early 1900s were largely heralded as an important, albeit contentious, find until formal investigations in 1953 revealed the fossils to be a hoax (Weiner, et al., 1953). The majority of sample books that specifically discuss fossils and/or archeological sites published prior to 1955 contain a discussion of the Piltdown remains as a viable archeological find (n=3). Starting with The Story of Our Ancestors by M. Edel published in 1955 all of the sample books (n=6) that mention the Piltdown remains identify them as a hoax. This pattern shows an adherence to trends in contemporaneous professional literature. While the interpretation and controversy surrounding the Piltdown fossils resulted in complex discussions in the professional literature (Straus, 1955; Spencer, 1990) the children’s trade books kept pace with contemporary knowledge as to the veracity of the remains as an archeological find.

*Distinguishing Features of Humans*

Nineteen (86%) of the sample books specifically discuss features that differentiate humans from other apes (Table 3). A large brain is unanimously listed in this sub-sample as a distinguishing feature. All of the comparative scholarly texts also discuss the size of the human brain as a distinguishing feature. Bipedality is also a feature mentioned in both

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the sample texts and the scholarly sources as a human trait. Vague considerations of bipedality are present in some of the early works of the sample: Erleigh (1929) alludes to “a new creature on Earth” that began to walk upright “though not always on its hind legs” (p.7). In a description of early fossil remains Quennell & Quennell (1922) write “The thigh bone of Pithecanthropus shows that he walked upright” (p.38). Sample books published after the 1950s tend to consider bipedality as a human trait in more detail: Edel (1955) devotes a chapter to exploring the development of bipedality; Friedman (1960) characterizes bipedality as the “most important step towards becoming human” (p.47); Goode (1973) traces the development of bipedality from “crouching apes” to “erect two-legged men” (p.50).

While the scholarly works focus on the development of physical traits that distinguish humans from other apes many of the sample texts focus on the cultural traits that define humans. For example, sample books discuss the propensity of humans to build homes (Erleigh, 1929), cooperate with each other (Ames & Wyler, 1958), speak and write (Scheele, 1957) and gather around a fire socially (Breasted, 1935) as definitive human characteristics.
Table 3: Distinguishing Features of Humans Quality Comparison Data

<table>
<thead>
<tr>
<th>Sample Books</th>
<th>Distinguishing Features of Humans</th>
<th>Professional Literature</th>
<th>Distinguishing Features of Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyday Life in the Old Stone Age (1922)</td>
<td>---</td>
<td>The Antiquity of Man</td>
<td>Big Brain</td>
</tr>
<tr>
<td>The Story of Mankind (1922)</td>
<td>Big Brain, Bipedal, Language</td>
<td>Man Rises to Parnassus</td>
<td>Big Brain</td>
</tr>
<tr>
<td>Man Before History: A Short Account of Prehistoric Times (1924)</td>
<td>“Clever” Brain</td>
<td>The Study of Man: An Introduction</td>
<td>Big Brain, “Soul”, Erect Posture, Language, Speech, Culture</td>
</tr>
<tr>
<td>The Child’s Story of the Human Race (1924)</td>
<td>Big Brain, Language</td>
<td>Men of the Old Stone Age: Their Environment, Life and Art</td>
<td>Big Brain, Bipedal</td>
</tr>
<tr>
<td>The Early Story of Mankind (1929)</td>
<td>---</td>
<td>Mankind So Far</td>
<td>Big Brain, Bipedal</td>
</tr>
<tr>
<td>In the Beginning: A First History for Little Children (1929)</td>
<td>Tool Use, Home Construction</td>
<td>Up From the Ape</td>
<td>Erect Posture, Bipedal, Big Brain, Abstract Thought</td>
</tr>
<tr>
<td>Man’s First Million Years (1941)</td>
<td>Large Brain, Bipedalism</td>
<td>African Genesis: A Personal Investigation into the Animal Origins and Nature of Man (1961)</td>
<td>“Killer Instinct”</td>
</tr>
<tr>
<td>Early Man (1968)</td>
<td>Big Brain, Bipedalism, Tool Use</td>
<td>Human Ancestors: Readings from Scientific American Isaac &amp; Leakey (1979)</td>
<td>Big Brain, Bipedal, “Foreshortened Face”, Sociality</td>
</tr>
<tr>
<td>People of the Ice Age (1973)</td>
<td>Erect, Bipedal, Large Brain</td>
<td>The Emergence of Humankind Pfeiffer &amp; Pfeiffer (1985)</td>
<td>Big Brain, Bipedal, Erect Posture</td>
</tr>
<tr>
<td>Early Humans (1989)</td>
<td>Big Brain, Bipedal, “Different Teeth”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Humans (2000)</td>
<td>Large Brain, Speech</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lucy Long Ago: Uncovering the Mysteries of Where We Came From (2009)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring the Past (2011)</td>
<td>Big Brain, Bipedalism, Cooperation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Lineage**

A text-by-text comparison of the species names and lineages presented in the sample books to those discussed in the scholarly works reveals a 95% percent compatibility rate between sample books containing proper species names and contemporaneous scholarly works. In other words, all but one sample text that provided information on the lineage of humankind corresponded to the lineages and species nomenclature discussed in contemporaneous scholarly works.

Disparity exists in the sample in terms of detail with which human lineage is discussed. Seven of the sample books do not provide specific information on species names or a discussion of the lineage of humans—five of these books were published in the 1920s and 1930s, one book was published in 1958 and one book was published in 1968. Of the 15 sample books that do discuss lineage in depth the number of species discussed varies from two to nine.

**Cannibalism**

Mentions of the act of cannibalism are found in six of the sample texts published from 1922 to 2000. Scholarly works published prior to the late 1980s also frequently mention the possibility that Neanderthals practiced cannibalism. In the mid to late 1980s several researchers published work disputing the notion that Neanderthals practiced cannibalism (Trinkhaus, 1985; Russell, 1987). This change in scholarly theory is mirrored in the sample as all of the books published prior to 1980 that discuss cannibalism identify Neanderthals as cannibals, while books published after 1980 that discuss theories of cannibalism refute the notion that Neanderthals participated in the practice.

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4 Edel (1955) refers to the Java remains discovered by E. Dubois as "*Pithecanthropus erectus*", while the contemporary professional literature refers to the remains as those of *Homo erectus*. The change in nomenclature occurred in the professional literature before the sample.

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Races

Seven of the sample books ranging in date of publication from 1924 to 2000 feature discussion of modern races in connection with considerations of the origins of man. Six of these books were published prior to 1970. The scholarly works in the comparative sample published from the 1920s until 1967 all contain detailed discussions of the development of modern races as a component of human evolution. Thus, the inclusion of discussions of modern races in the sample books is aligned with the scholarly consideration of the topic. However, the continued consideration of modern races found in the sample book published in 2000—*Early Humans* by Gallant—is aberrant in that the contemporaneous scholarly works considered do not discuss the topic. Defining a race as “a group of populations that have certain physical characteristics and genes in common”, Gallant (2000) focuses the discussion on physical characteristics as environmentally adaptive.

Part Two: Textual and Visual Gender Representation

*Frequency Analysis of Gender Representation Data*

Text References

In the 22 books included in this study, a total of 176 text references to individuals of identifiable sex were documented and analyzed. Of the 176 text references, 108 (61%) refer to males and 68 (39%) refer to females. *Table 4* presents an overview of the analysis of sexed text references.

**Table 4**: Sex Representation in Text

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of Text References</th>
<th>Percent of Total Number of Text References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>108</td>
<td>61%</td>
</tr>
<tr>
<td>Female</td>
<td>68</td>
<td>39%</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>100%</td>
</tr>
</tbody>
</table>
The data compiled in Table 4 was evaluated by calculating the binomial distribution probability of text references to males to determine if there is a significant difference between the number of male and female individuals referred to in the text of the sample. This calculation allows for an exploration of disparities in gender representation in the sample as previous research on gender in children’s literature suggests females are under-represented.

H₀:1: Overall, text references to males do not significantly differ in number from text references to females.

Males are referred to by 61% of the text references, significantly more references than would be expected by chance, exact binomial p (one-tailed) = .0006. The null hypothesis is rejected.

Images

In the 22 books included in this study, a total of 183 images that include individuals of identifiable sex were documented and analyzed. Of the 183 images, 168 (92%) contain male figures and 64 (35%) contain female figures. Table 5 presents an overview of the analysis of images. Within the 183 images a total of 488 individuals of identifiable sex are depicted. Of the 488 individuals, 377 (77%) are males and 111 (23%) are females. Table 6 presents an overview of the analysis of sexed figures in the images of the sample.

Table 5: Sex Representation in Images

<table>
<thead>
<tr>
<th>Images</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images with Male Figures</td>
<td>168</td>
<td>92%</td>
</tr>
<tr>
<td>Images with Female Figures</td>
<td>64</td>
<td>35%</td>
</tr>
</tbody>
</table>


Table 6: Individual Sexed Figures in Images

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of Individuals Depicted</th>
<th>Percentage of Total Individuals Depicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>377</td>
<td>77%</td>
</tr>
<tr>
<td>Female</td>
<td>111</td>
<td>23%</td>
</tr>
<tr>
<td>Total</td>
<td>488</td>
<td>100%</td>
</tr>
</tbody>
</table>

The data compiled in Table 5 were evaluated by calculating the binomial distribution probability of the number of images depicting males to determine if there is a significant difference between the number of images depicting males and the number of images depicting females in the sample.

**H₀₂: Overall, the number of images depicting males does not significantly differ from the number of images depicting females.**

Males are depicted in 92% of images, significantly more depictions than would be expected by chance, exact binomial p (one-tailed) = 2.99x10⁻³⁴. The null hypothesis is rejected.

The data compiled in Table 6 was evaluated by calculating the binomial distribution probability of the number of individual depictions of males to determine if there is a significant difference between the number of male figures and the number of female figures in the images of the sample.

**H₀₃: Overall, the number of depictions of individual males does not significantly differ from the number of depictions of individual females.**

Individual male figures comprise 77% of all figures depicted, significantly more individual depictions than would be expected by chance, exact binomial p (one-tailed) = 2.34x10⁻³⁵. The null hypothesis is rejected.

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**Frequency of Representation across Time**

In order to determine if gender representations had changed over time a frequency table that details the number of males and females referenced in the text and depicted in the images of each sample book was constructed. Next, the data were explored in terms of intellectual epochs by grouping the sample texts into three units of analysis and exploring frequency data by temporal grouping. **Table 7** shows the instances of male and female occurrences in the images and texts of the 22 sample books sorted by year of publication.

**Table 7:** Sex Representation in Images and Text by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Images</th>
<th>%</th>
<th>Text</th>
<th>%</th>
<th>Images</th>
<th>%</th>
<th>Text</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922</td>
<td>22</td>
<td>71</td>
<td>11</td>
<td>61</td>
<td>9</td>
<td>29</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>1924</td>
<td>14</td>
<td>88</td>
<td>24</td>
<td>69</td>
<td>2</td>
<td>12</td>
<td>11</td>
<td>31</td>
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<tr>
<td>1929</td>
<td>6</td>
<td>50</td>
<td>12</td>
<td>46</td>
<td>6</td>
<td>50</td>
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<td>1935</td>
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<td>2</td>
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<td>1941</td>
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<tr>
<td>1955</td>
<td>5</td>
<td>83</td>
<td>1</td>
<td>50</td>
<td>1</td>
<td>17</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>1957</td>
<td>7</td>
<td>64</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>36</td>
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<td>1958</td>
<td>13</td>
<td>93</td>
<td>11</td>
<td>61</td>
<td>1</td>
<td>.07</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>1960</td>
<td>10</td>
<td>91</td>
<td>22</td>
<td>65</td>
<td>1</td>
<td>.09</td>
<td>12</td>
<td>35</td>
</tr>
<tr>
<td>1968</td>
<td>37</td>
<td>77</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>23</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1969</td>
<td>4</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>1973</td>
<td>5</td>
<td>83</td>
<td>18</td>
<td>69</td>
<td>1</td>
<td>17</td>
<td>8</td>
<td>31</td>
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<td>1988</td>
<td>20</td>
<td>67</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>33</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1989</td>
<td>3</td>
<td>43</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>57</td>
<td>2</td>
<td>100</td>
</tr>
</tbody>
</table>

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The data in Table 7 was used to create charts that track the percentage of text references to females over time (Figure 1).

One sample book published in 1989 contains text references to females but no references to males. Similarly, one sample book published in 1969 contains text references to males but not females. Save the two books noted the percentage of text references to females is between 30% and 60% throughout the sample.

Figure 2 shows the percentage of female figures in the sample images over time. Except for the sample book published in 2009 that focuses on a set of female fossilized remains, female figures account for less than 50% of depicted individuals throughout the sample.
Trends by Temporal Groupings

As the focus of this analysis is the representation of males and females, Table 8 displays an assessment of the data concerned with changing trends in the presence of males and females in the sample over time in which the units of analysis are thirty year time periods, rather than individual books. It is of note that no books from the 1990s are present in the sample\(^5\), thus the statistics provided for the time period 1980s-2010s are derived from books published in the years that comprise the 1980s, 2000s and 2010s. Also noteworthy: several of the books in the sample do not contain text and/or visuals of individuals of identifiable sex: seven of the sample books contain no text references and four books contain no images. These books are evenly distributed throughout the thirty-year time periods explored in Table 8.

\(^5\) There are no books on human origins recommended by the Children’s Catalog published in the 1990s.
The descriptive statistics point to several patterns in overall sex representation in the sample across time. First, the data suggest disparity in terms of the number of males and females present in the sample; overall books published in the midcentury display the least parity followed by the earliest books in the sample with the most contemporary books displaying the greatest parity. Second, the statistics show variations in sex representation by type of reference. The most equitable category of male and female presence is text references, while the least equitable category is the number of male and female figures depicted in the images of the sample. It is of note that there are far fewer text references to individuals of identifiable sex than depictions. This relatively small sample size may account for the relatively greater parity in text references. The 1980s-2010s is the only period in which average female representation is equal to that of male representation for text references. Examining each variable range shows that it is more common for women to be absent from a book than men, this variance is especially pronounced in books published in the 1950s-1970s.

Third, analysis of the statistics in Table 8 allows for comparisons of parity across time for each measurement of frequency. Across the board, the most contemporary books display the most parity for each measurement, followed by the books published in the 1920s-1940s, with the books published in the 1950s-1970s displaying the most disparity across all measures.
Table 8: Descriptive Statistics of the Presence of Males and Females in Text and Images by Time Period

<table>
<thead>
<tr>
<th></th>
<th>Full Set, N=22</th>
<th>1920s-1940s, N=8</th>
<th>1950s-1970s, N=8</th>
<th>1980s-2010s, N=6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ratio</td>
<td>Frequency</td>
<td>Ratio</td>
<td>Frequency</td>
</tr>
<tr>
<td><strong>Text</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male:Female</td>
<td>1.6*</td>
<td>108:68</td>
<td>1.4*</td>
<td>49:34</td>
</tr>
<tr>
<td><strong>Images</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male:Female</td>
<td>2.6*</td>
<td>168:64</td>
<td>2.6*</td>
<td>44:17</td>
</tr>
<tr>
<td><strong>Individual Figures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depicted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male:Female</td>
<td>3.3*</td>
<td>377:113</td>
<td>2.9*</td>
<td>72:25</td>
</tr>
</tbody>
</table>

Note: Significance tests reported for ratios are binomial distribution probability calculations. *p<0.05.

All but one of the male to female comparisons summarized in Table 8 are statistically significant for differences; in other words for each measurement in each time period (save text references in books published after 1980) males are featured significantly more often than females. The statistics in Table 8 also highlight the comparatively conservative nature of the images of the sample.

Research Sub-Question 1: How are men and women characterized in the sample?

Is there a relationship between an individual’s sex and his/her presence in various settings: open landscape, camp, cave?

Text References

Of 77 text references to individuals of identifiable sex in the open landscape 57 (74%) were male and 20 (26%) were female. Twenty-four text references place
individuals in a camp setting; of these references 14 (58%) refer to males and 10 (42%) refer to females. Nineteen references place individuals in a cave setting; of these references 11 (58%) are to males and 8 (42%) are females. One text reference placed a male in a setting other than the three classified locales and 57 text references did not specify a setting (30 [53%] males and 27 [47%] females).

Locale data was evaluated by calculating the binomial distribution probability of references to males in the open landscape:

\[ H_0: \text{Overall, text references to males in the open landscape do not significantly differ in number from text references to females in the open landscape.} \]

Males are referred to by 74% of the text references to individuals in the open landscape, significantly more references than would be expected by chance, exact binomial \( p \) (one-tailed) = \( 9.74 \times 10^{-6} \).

Exploring locale data by sex reveals that of 82 text references to males in identifiable locales 57 (70%) place males in the open, 14 (17%) place males in camp settings and 11 (13%) place males in caves. Of 38 text references to females in identifiable locales 20 (53%) place females in the open, 10 (26%) place females in camp settings and 8 (21%) place females in caves. Figure 3 displays locale data in proportion to all references of males and females in the text of the sample. Males are more often referred to in open settings, while females are discussed in open settings and camp and cave locations in relatively equal proportions.
Text reference data on the location of males and females was grouped into two categories: references to individuals in the open landscape and references to individuals in camp and cave settings. For each sample book the percentage of references to individuals in the open landscape was calculated to explore location of individuals by sex over time. **Figure 4** indicates that frequency of references to females in the open landscape varies through time. Four books contain text references that exclusively locate females in camp and cave settings; these books are spread throughout the sample (1924, 1955, 1960 and 2009).
Only one book, published in 1935, contains text references that place males exclusively in camp and cave settings.

To analyze variations in the locations of males and females across the sample the percentage of male and the percentage of female text references that locate individuals in the open landscape were compared for each time period:
Images

Of 244 individuals of identifiable sex depicted in open landscapes 202 (83%) were male and 42 (17%) were female. Of 122 individuals of identifiable sex depicted in a camp setting 82 (67%) were male and 40 (33%) were female. Seventy-five individuals of identifiable sex were depicted in cave settings; of these 75 individuals 60 (80%) were male and 15 (20%) were female. Forty-nine figures were depicted without a discernable setting; of these figures 34 (69%) are male and 15 (31%) are female.

In order to ascertain if males are depicted in the open landscape significantly more often than females the binomial distribution probability of male open landscape depictions was calculated.

$H_0$: Overall, the number of depictions of males in the open landscape does not significantly differ from the number of depictions of females in the open landscape.

Illustrations of males comprise 83% of depictions of individuals in the open landscape, significantly more depictions than expected by chance, exact binomial $p$ (one-tailed) = $1.11 \times 10^{-26}$.

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Figure 7 explores images of individuals in the open landscape as a percentage of all depictions of individuals in identifiable locations by sex. Of 344 depictions of males in identifiable locales, 202 (59%) depict males in the open landscape, while 82 (24%) place males in camp settings and 60 (17%) locate males in caves. Of 97 depictions of females in identifiable locales, 42 (43%) place females in the open landscape while 40 (41%) place females in camp settings and 15 (15%) locate them in caves.

Males are more often depicted in open settings, while females are more often depicted in camp and cave settings. All female depictions in camp and cave settings are illustrations of domestic scenes. One hundred and ten of the images of males in camp and cave settings are domestic depictions, while 34 are depictions of males engaged in ritualistic or artistic activities set in caves.

Visual depiction data on the location of males and females was grouped into two categories: depictions of individuals in the open landscape and depictions of individuals in camp and cave sites. For each sample book the percentage of references to individuals in the open landscape was calculated to explore location of individuals by sex over time.
Figure 8 indicates that prior to the 1950s it was more common for females to be depicted in camp and cave settings; books published in 1924 and 1929 exclusively depict females in domestic scenes located in camp and cave settings. Following an increase in the depiction of females in open landscapes in the 1950s, books published after the mid-20th century generally depict females in open landscapes more often than previously published books. It is of note however that two of the sample books published after 1950, *The Story of Our Ancestors* by M. Edel published in 1955 and *People of the Ice Age* by R. Goode published in 1973 do not follow this pattern as they include depictions of females exclusively in domestic settings.

Figure 8 also indicates that in books published after the mid-20th century it is more common to encounter depictions of males in open landscapes than in camp and cave settings. Save for one book published in 1960 that depicts males in camp and cave settings more often than in the open landscape, male open landscape depictions do not dip below 40% until the 2000s.
To analyze variations in the locations of males and females in images across the sample the percentage of male and the percentage of female depictions that locate individuals in the open landscape were compared for each time period:

![Figure 8: Percentage of Figures Depicted in the Open Landscape in the Images of the Sample](image)

![Figure 9: Percentage of Images of that Place Individuals in the Open by Sex & Time Period](image)
Is there a relationship between gender and activity?

**Text References**

A total of 203 text references to the performance of activities are present in the sample. Of these 203 references, 118 (58%) refer to males performing activities and 85 (42%) refer to females performing activities. **Table 9** provides a breakdown of text references to activities by activity and sex. **Figures 10 & 11** display the relative association of each activity with males and females.

**Table 9: Activities According to Sex in Text References**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Male Actors</th>
<th></th>
<th>Females Actors</th>
<th></th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Making/Holding Tools</td>
<td>13</td>
<td>72%</td>
<td>5</td>
<td>28%</td>
<td>18</td>
</tr>
<tr>
<td>Making/Holding Weapons</td>
<td>8</td>
<td>80%</td>
<td>2</td>
<td>20%</td>
<td>10</td>
</tr>
<tr>
<td>Hunting</td>
<td>44</td>
<td>98%</td>
<td>1</td>
<td>2%</td>
<td>45</td>
</tr>
<tr>
<td>Gathering Food</td>
<td>2</td>
<td>11%</td>
<td>16</td>
<td>89%</td>
<td>18</td>
</tr>
<tr>
<td>Socializing</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Cooking/Preparing Plants</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>100%</td>
<td>2</td>
</tr>
<tr>
<td>Cooking/Preparing Meat</td>
<td>2</td>
<td>33%</td>
<td>4</td>
<td>67%</td>
<td>6</td>
</tr>
<tr>
<td>Caring for a Child</td>
<td>0</td>
<td>0%</td>
<td>12</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>Teaching a Child</td>
<td>2</td>
<td>67%</td>
<td>1</td>
<td>33%</td>
<td>3</td>
</tr>
<tr>
<td>Working Hide</td>
<td>0</td>
<td>0%</td>
<td>4</td>
<td>100%</td>
<td>4</td>
</tr>
<tr>
<td>Sewing</td>
<td>0</td>
<td>0%</td>
<td>12</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>Interacting w/Outsiders</td>
<td>4</td>
<td>80%</td>
<td>1</td>
<td>20%</td>
<td>5</td>
</tr>
<tr>
<td>Leadership</td>
<td>19</td>
<td>83%</td>
<td>4</td>
<td>17%</td>
<td>23</td>
</tr>
<tr>
<td>Combat</td>
<td>4</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
<td>4</td>
</tr>
<tr>
<td>Serving as a Possession</td>
<td>0</td>
<td>0%</td>
<td>3</td>
<td>100%</td>
<td>3</td>
</tr>
<tr>
<td>Grooming</td>
<td>3</td>
<td>19%</td>
<td>13</td>
<td>81%</td>
<td>16</td>
</tr>
<tr>
<td>Caring for Sick/Wounded</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>100%</td>
<td>1</td>
</tr>
<tr>
<td>Making Art</td>
<td>11</td>
<td>73%</td>
<td>4</td>
<td>27%</td>
<td>15</td>
</tr>
<tr>
<td>Performing a Ritual</td>
<td>6</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
<td>6</td>
</tr>
</tbody>
</table>

**Note:** Activities explored in the text of the sample do not parallel activities explored in the images. See **Appendix D** for the list of activities explored in the text and **Appendix E** for a list of activities explored in the images.
HUMAN ORIGINS IN INFORMATIONAL BOOKS

Figure 10: Proportional representation of activities performed by males in the text of the sample. Note: Activities with no instances of performance by either sex were excluded from Figures 10 & 11.

Figure 11: Proportional representation of activities performed by females in the text of the sample.

Types of Activities Performed in the Text of the Sample by Sex

To further explore the types of activities performed by males and females in the text of the sample, activities from the pool of nineteen activities on which data was collected

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were grouped according to gender roles in Western and ethnographic societies and explored by sex. The number of males and females performing activities in each category was tallied for the entire sample of text references to individuals of identifiable gender. Each category of activity was then graphed as a percentage of the total activities in these categories performed by each sex (Figure 12 & 13).

Western gender role activities include behaviors associated with the sexes in Western cultures (see West & Zimmerman, 1987; Beere, 1990; Marini, 1990; Basow & Basow, 1992; Kortenhaus & Demarest, 1993; Lorber, 1994; Collins, 2011). Specific activities associated with males in Western society include making tools and weapons, hunting, cooking meat, teaching boys, interacting with outsiders, leading and engaging in combat. Specific activities associated with females in Western society include gathering, cooking plants, sewing\(^6\), caring for children and the sick, teaching girls and grooming.

Ethnographic gender role activities include behaviors associated with the sexes based on ethnographic studies of hunter-gather societies (Murdock, 1937; Murdock & Provost, 1973; Burton, Brudner & White, 1977; Baker, 1984). Specific activities associated with males in ethnographic research include making tools and weapons, hunting, cooking meat, teaching boys, interacting with outsiders, leading and engaging in combat. Activities associated with women in ethnographic research include making tools for female associated tasks, gathering, cooking plants, sewing, working hide\(^7\), caring for children and teaching girls.

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\(^6\) Hide work is included in this category as a manifestation of sewing.  
\(^7\) Sewing and working hide have been identified as male activities by ethnographic research focused on farming societies and female work by ethnographic research on hunter-gather societies (Murdock & Provost, 1973)

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Figure 12: Proportional representation of the types of activities performed by males in the text of the sample.

Figure 13: Proportional representation of the types of activities performed by females in the text of the sample.
The categorical data was further explored by calculating the binomial distribution probability of males engaging in typical Western male and female activities and typical ethnographic male and female activities in the text of the sample.

H₀6: Overall, references to males performing typical Western male activities do not significantly differ in number from references to females performing Western male activities.

Males are depicted performing 84% of traditional Western male activities in the sample, significantly more depictions than would be expected by chance, exact binomial p (one-tailed) = 1.14x10⁻¹⁴.

H₀7: Overall, references to males performing typical Western female activities do not significantly differ in number from references to females performing Western female activities.

Males are referred to as performing 10% of traditional Western female activities in the sample, significantly fewer references than would be expected by chance, exact binomial p (one-tailed) = 3.28x10⁻¹².

H₀8: Overall, references to males performing activities ethnographically identified as male tasks do not significantly differ in number from references to females performing activities ethnographically identified as male tasks.

Males are referred to as performing 84% of activities ethnographically identified as male tasks in the sample, significantly more references than would be expected by chance, exact binomial p (one-tailed) = 4.45x10⁻⁵⁰.

H₀9: Overall, references to males performing activities ethnographically identified as female tasks do not significantly differ in number from references to females performing activities ethnographically identified as female tasks.

Males are referred to as performing 25% of activities ethnographically identified as female tasks in the sample, significantly fewer references than would be expected by chance, exact binomial p (one-tailed) = 1.01x10⁻⁵.
Range of Activities in the Text over Time

In order to ascertain if males and females are referred to as participating in a wider range of activities over time the number of different activities from the 19 categories of text activities on which data was collected performed by sex in the text of each sample book was recorded and graphed over time (Figure 14). Males are generally referred to as performing a wider range of activities than females across the sample, especially during the period between 1950 and 1980. Additionally, the data suggests that when an author includes more detailed information about activities the focus of the information is generally on the range of activities performed by males in prehistory.

Types of Activities Performed in the Text of the Sample over Time

To explore questions about changes in the types of activities performed by males and females in the text of the sample from 1922 to the present activities were grouped into four descriptive categories: nurturing activities, domestic activities, creative activities and
food procurement activities. The number of males and females performing activities in each category was tallied per sample book. The percentage of males and females performing activities in each category was then formulated and plotted in chronological order.

Images

A total of 502 activities are depicted in the images of the sample. Males perform 374 (75%) of the depicted activities, while females perform 128 (25%) of the depicted activities. Table 10 provides a breakdown of visual activities data detailed by activity and sex. Figures 15 & 16 display the relative association of each activity to males and females.

Table 10: Activities According to Sex in Images

<table>
<thead>
<tr>
<th>Activity</th>
<th>Male Actors</th>
<th></th>
<th>Female Actors</th>
<th></th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Making/Holding Tools</td>
<td>58</td>
<td>74%</td>
<td>20</td>
<td>26%</td>
<td>78</td>
</tr>
<tr>
<td>Making/Holding Weapons</td>
<td>55</td>
<td>98%</td>
<td>1</td>
<td>2%</td>
<td>56</td>
</tr>
<tr>
<td>Hunting</td>
<td>93</td>
<td>99%</td>
<td>1</td>
<td>1%</td>
<td>94</td>
</tr>
<tr>
<td>Gathering Food</td>
<td>9</td>
<td>47%</td>
<td>10</td>
<td>53%</td>
<td>19</td>
</tr>
<tr>
<td>Socializing</td>
<td>12</td>
<td>75%</td>
<td>4</td>
<td>25%</td>
<td>16</td>
</tr>
<tr>
<td>Cooking/Preparing Plants</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Cooking/Preparing Meat</td>
<td>25</td>
<td>67%</td>
<td>12</td>
<td>32%</td>
<td>37</td>
</tr>
<tr>
<td>Caring for a Child</td>
<td>1</td>
<td>2%</td>
<td>53</td>
<td>98%</td>
<td>54</td>
</tr>
<tr>
<td>Teaching a Child</td>
<td>9</td>
<td>90%</td>
<td>1</td>
<td>10%</td>
<td>10</td>
</tr>
<tr>
<td>Working Hide</td>
<td>2</td>
<td>29%</td>
<td>5</td>
<td>71%</td>
<td>7</td>
</tr>
<tr>
<td>Sewing</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>100%</td>
<td>2</td>
</tr>
<tr>
<td>Interacting w/Outsiders</td>
<td>18</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
<td>18</td>
</tr>
<tr>
<td>Leadership</td>
<td>4</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
<td>4</td>
</tr>
<tr>
<td>Making Art</td>
<td>24</td>
<td>92%</td>
<td>2</td>
<td>2%</td>
<td>26</td>
</tr>
<tr>
<td>Performing a Ritual</td>
<td>10</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
<td>10</td>
</tr>
<tr>
<td>Combat</td>
<td>25</td>
<td>96%</td>
<td>1</td>
<td>4%</td>
<td>26</td>
</tr>
<tr>
<td>Grooming</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>64%</td>
<td>16</td>
<td>36%</td>
<td>45</td>
</tr>
</tbody>
</table>

Note: Activities explored in the images of the sample do not parallel activities explored in the text. See Appendix D for the list of activities explored in the text and Appendix E for a list of activities explored in the images.
Figure 15: Proportional representation of activities performed by males in sample images. 

Note: Activities with no instances of performance by either sex were excluded from Figures 15 & 16.

Figure 16: Proportional representation of activities performed by females in sample images.

Types of Activities Performed in the Images of the Sample by Sex

To further explore the types of activities performed by males and females in the images of the sample, activities from the pool of eighteen activities on which data was collected were grouped according to gender roles in modern and ethnographic societies and explored by sex. The number of males and females performing activities in each
category was tallied for the entire sample of figures depicted. Each category of activity was then graphed as a percentage of the total activities in these categories performed by each sex (Figure 17 & 18).

Western gender role activities include behaviors associated with the sexes in Western cultures (see West & Zimmerman, 1987; Beere, 1990; Marini, 1990; Basow & Basow, 1992; Kortenhaus & Demarest, 1993; Lorber, 1994; Collins, 2011). Specific activities associated with males in Western society include making tools and weapons, hunting, cooking meat, teaching boys, interacting with outsiders, leading and engaging in combat. Specific activities associated with females in Western society include gathering, cooking plants, sewing\(^8\), caring for children and the sick, teaching girls and grooming.

Ethnographic gender role activities include behaviors associated with the sexes based on ethnographic studies of hunter-gather societies (Murdock, 1937; Murdock & Provost, 1973; Burton, Brudner & White, 1977; Baker, 1984). Specific activities associated with males in ethnographic research include making tools and weapons, hunting, cooking meat, teaching boys, interacting with outsiders, leading and engaging in combat. Activities associated with women in ethnographic research include making tools for female associated tasks, gathering, cooking plants, sewing, working hide\(^9\), caring for children and teaching girls.

\(^8\) Hide work is included in this category as a manifestation of sewing.

\(^9\) Sewing and working hide have been identified as male activities by ethnographic research focused on farming societies and female work by ethnographic research on hunter gather societies (Murdock & Provost, 1973)
Figure 17: Proportional representation of types of activities performed by males in the images of the sample.

Figure 18: Proportional representation of types of activities performed by females in the images of the sample.

The categorical data was further explored by calculating the binomial distribution probability of males engaging in typical Western male and female activities and typical ethnographic male and female activities in the images of the sample.
Overall, depictions of males performing typical Western male activities do not significantly differ in number from depictions of females performing Western male activities.

Males are depicted performing 89% of traditional Western male activities in the sample, significantly more depictions than would be expected by chance, exact binomial p (one-tailed) = 4.45x10^{-50}.

Overall, depictions of males performing typical Western female activities do not significantly differ in number from depictions of females performing Western female activities.

Males are depicted performing 23% of traditional Western female activities in the sample, significantly fewer depictions than would be expected by chance, exact binomial p (one-tailed) = 5.78x10^{-8}.

Overall, depictions of males performing activities ethnographically identified as male tasks do not significantly differ in number from depictions of females performing activities ethnographically identified as male tasks.

Males are depicted performing 89% of activities ethnographically identified as male tasks in the sample, significantly more depictions than would be expected by chance, exact binomial p (one-tailed) = 4.45x10^{-50}.

Overall, depictions of males performing activities ethnographically identified as female tasks do not significantly differ in number from depictions of females performing activities ethnographically identified as female tasks.

Males are depicted performing 19% of activities ethnographically identified as female tasks in the sample, significantly fewer depictions than would be expected by chance, exact binomial p (one-tailed) = 5.51x10^{-12}.

**Range of Activities in Images by Sex over Time**

In order to ascertain if males and females were depicted as participating in a wider range of activities over time the number of the 18 different activities performed by sex on
which data was collected in the images of each sample book was recorded (Figure 19). Over time both males and females are generally depicted as performing a greater number of different activities but, males are generally depicted as performing a wider range of activities than females across the sample.

Types of Activities Depicted in the Sample Images over Time

To explore questions about changes in the types of activities performed by males and females in the images of the sample activities, the pool of eighteen activities on which data was collected were grouped into four descriptive categories: nurturing activities, domestic activities, creative activities and food procurement activities. The number of males and females performing activities in each category was tallied per sample book. The percentage of males and females performing activities in each category was then formulated and plotted in chronological order.
Is there a relationship between sex and social grouping?

*Text References*

The majority of text references to individuals of identifiable sex are statements discussing the activities of males or females in general and do not specify a particular social group. Of the 176 text references 58 (33%) refer to the activities of men in general, while 57 (32%) refer to the activities of women in general. Thirty-nine references discuss a solitary actor; of these 39 references 31 (79%) refer to males and 8 (21%) refer to females. Twelve references indicate an actor is part of a uni-gender social group of peers, of these references 11 (92%) refer to males and 1 (.08%) refers to females. Four references indicate an actor is part of a multi-gender grouping of peers, three (75%) of these refer to males and one (25%) refers to a female. One reference indicates a child or multiple children are accompanying a male primary actor. Five references place actors in nuclear family groupings; of these references four (80%) refer to a male as part of a nuclear family and one (20%) refers to a female as part of a nuclear family. **Figure 20** displays social grouping according to sex as a percentage of each sex’s total representation in the sample.
The data collected on text references to social groupings, specifically references to solitary individuals, were evaluated by calculating the binomial distribution probability of text references to solitary males to determine if there is a significant difference between the number of male and female individuals represented as solitary actors.

H_0: Overall, text references to males as solitary actors do not significantly differ in number from text references to females as solitary actors.

Males are referred to by 79% of the text references to solitary individuals, significantly more references than would be expected by chance, exact binomial p (one-tailed) =0.000112. The null hypothesis is rejected.

Considering social group data by sex reveals that of 50 text references to males as part of the five social groupings listed in Figure 20, 31 (62%) refer to solitary male actors, 11 (22%) refer to a male as part of a uni-gender group, 3 (6%) refer to a male as part of a multi-gender group, 1 (2%) discusses a male as interacting with a child and 4 (8%) discuss a male as part of a nuclear family. Of the 11 text references to females as part of the five social groups, 8 (72%) refer to a female as a solitary actor, 1 (9%) refers to a female as part of a uni-gender group, 1 (9%) refers to a female as part of a multi-gender group and 1 (9%) refers to a female as part of a nuclear family.

Images

Sixty-eight images depict a solitary individual; of these images 63 (93%) depict solitary males, while 5 (7%) depict solitary females. Fifty images depict uni-gender social groupings; of these images 46 (92%) depict male groupings and 4 (8%) depict female groupings. Forty-six images (25% of the entire sample of images) depict multi-gender groupings, while nine images (5% of the entire sample of images) depict nuclear family
units. Three images (2% of the entire sample) depict a female with one or more children, while seven images (4% of the entire sample) depict a male with one or more children. The data collected on images and social groupings, specifically depictions of solitary individuals, was evaluated by calculating the binomial distribution probability of depictions of males as solitary actors to determine if there is a significant difference between the number of male and female individuals represented as solitary actors.

\[ H_0 \text{15}: \text{Overall, depictions of males as solitary actors do not significantly differ in number from depictions of females as solitary actors.} \]

Males are depicted in 93% of images of solitary individuals, significantly more often than would be expected by chance, exact binomial \( p \) (one-tailed) = \( 3.53 \times 10^{-14} \) The null hypothesis is rejected.

Are males and females depicted in the same manner in the images of these books?

**Gender and Placement**

Males comprise 77% of the individual figures depicted in the images of the sample and 82% of figures depicted in the foreground of images, 73% of the figures pictured in the middle ground of images and 64% of the figures depicted in the background of images. Females comprise 23% of the individual figures depicted in the sample and 18% of figures depicted in the foreground of images, 27% of figures depicted in the middle ground of images and 36% of the figures depicted in the background of images.

The data collected on gender and placement, specifically depictions of individuals in the foreground of images, were evaluated by calculating the binomial distribution probability of depictions of males in the foreground of images to determine if there is a significant difference between the number of male and female individuals in the foreground of images.

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H₀₁₆: Overall, depictions of males in the foreground of images do not significantly differ in number from depictions of females in the foreground of images.

Males comprise 82% of figures depicted in the foreground of images, significantly more than would be expected by chance, exact binomial p (one-tailed) = 3.14x10⁻³⁴. The null hypothesis is rejected.

Placement data was also considered by sex (Figure 21): of 377 male figures depicted in the images of the sample, 272 (72%) are depicted in the foreground of images, 44 (12%) are depicted in the middle ground and 61 (16) are depicted in the background. Of 109 females figures depicted in the images of the sample, 59 (54%) are depicted in the foreground of images, 16 (15%) in the middle ground and 34 (31%) in the background.

![Figure 21: Placement of Figures in Images by Sex](image)

Placement of males and females in the images of the sample across time was explored by calculating the percentage of figures in the foreground of each book that are female. The resulting percentages were graphed in chronological order (Figure 22). The data suggest that women are more present in the foreground of images in books published after the 1970s than in books published prior to 1970. In books published in the 1940s,
1950s and 1960s it is more common to find males depicted in the foreground of images than in books published prior to 1940 or after 1969.

Placement data was also explored in terms of time periods (Figure 23). In books published in the 1920s to 1940s males represent 75% of the figures depicted in the foreground of images and females comprise 25% of figures depicted in the foreground of images. Males comprise 94% and females comprise 6% of figures depicted in the foreground of images in books published between 1950s and 1980s. In the most contemporary books in the sample males comprise 69% and females comprise 31% of the figures depicted in the foreground of images.

Figure 22: Percentage of Figures in the Foreground of Images that Are Female

Figure 23 displays the percentage of images with male figures that feature males in the foreground and the percentage of images with female figures that feature females in the foreground for each time period. The percentages by sex are not calculated based on the overall sample of images, thus do not reflect the overall percentages provided in the text on page 76 of this document. Rather this figure provides an additional analysis of the data by sex and time.
Gender and Posture

Males comprise 84% of the figures depicted with upright posture and 70% of the figures in a lowered (kneeling, sitting, crouching, etc.) stance in the images of the sample. Females comprise 16% of figures depicted with upright posture and 30% of figures in a lowered stance. The binomial distribution probability of depictions of males with upright posture was calculated to determine if there is a significant difference between the number of depictions of males with upright posture and the number of depictions of females with upright posture.

H₀: Overall, the number of depictions of males with upright posture does not significantly differ from the number of depictions of females with upright posture.

Males comprise 84% of all figures depicted with upright posture, significantly more often than would be expected by chance, exact binomial p (one-tailed) = 6.33x10⁻²⁹. The null hypothesis is rejected.

Considering posture data by sex reveals (Figure 24): Of 377 male figures 210 (56%) are depicted with upright posture and 167 (44%) are depicted in a lowered stance. Of 111
female figures, 40 (36%) are depicted with upright posture and 71 (44%) are depicted in a lowered stance.

Posture of males and females in the images of the sample across time was analyzed by calculating the percentage of figures depicted in an upright position in each book that are female. The resulting percentages were graphed in chronological order (Figure 25). Starting in the 1980s females are increasingly depicted in upright positions.
Posture data was also explored in terms of time periods (Figure 26). In books published from the 1920s through the 1940s males represent 87% of figures depicted with upright posture and 63% of figures depicted in a lowered position while females represent 13% of figures depicted with upright posture and 37% of figures depicted in a lowered position. Male figures comprise 88% of the figures depicted in an upright position and females comprise 12% in books published from 1950 through the 1970s. In the same sub-sample males constitute 79% and females constitute 21% of figures depicted in lowered positions. In books published from 1980 through the present males comprise 73% of figures depicted with upright posture and 65% of figures in a lowered position. Females in the same sample comprise 27% of figures depicted with upright posture and 35% of figures in a lowered position.

Figure 26 compares the percentage male figures that are upright to the percentage of female figures that are upright for each time period. The percentages by sex are not calculated based on the overall sample of figures, thus do not reflect the overall percentages provided in the text on page 79 of this document. Rather this figure provides an additional analysis of the data by sex and time.
Gender and Motion

In the sample overall males comprise 80% of figures depicted in motion and 62% of figures depicted in a static pose. The binomial distribution probability of depictions of males in motion was calculated to determine if there is a significant difference between the number of depictions of males in motion and the number of depictions of females in motion.

\( H_0 \): Overall, the number of depictions of males in motion does not significantly differ from the number of depictions of females in motion.

Males comprise 80% of all figures depicted in motion, significantly more depictions than would be expected by chance, exact binomial p (one-tailed) = 5.87x10\(^{-37}\). The null hypothesis is rejected.

Of 377 depicted male figures in the images of the sample 329 (87%) are illustrated as in motion, while 48 (13%) are illustrated in static poses. Of the 111 female figures depicted in the images of the sample 81 (73%) are illustrated in motion and 30 (37%) are illustrated in static poses. Figure 27 displays the percentage of all figures by sex in motion and static poses.
Dynamic movement of male and female figures in the sample images was analyzed over time by calculating the percentage of figures in motion that are female in each sample book. The resulting percentages were graphed in chronological order (Figure 28).

Motion data were also examined and compared throughout the various time periods: in books published from 1920 through the 1940s males comprise 77% of figures depicted in motion and 57% of figures depicted in a static state. In the same sub-sample of
books females constitute 23% of figures depicted in motion and 43% of figures depicted in a static state. Male figures comprise 85% and females 15% of figures depicted in motion in sample books published between 1950 and 1979, while males comprise 56% and females 44% of figures depicted in a static state. In books published from 1980 to the present males comprise 68% of figures depicted in motion and 69% of figures depicted in static state. In the same sample females comprise 32% of figures in motion and 31% of figures depicted in a static state.

The data collected on motion by sex in each time period, specifically dynamic depiction by sex, were evaluated by calculating and comparing the percentage of male figures in motion to the percentage of female figures in motion during each time period (Figure 29).

![Figure 29: Percentage of Depictions that Feature an Individual in Motion by Sex & Time Period](image-url)
Chapter 5: Discussion and Conclusion

Discussion

The depiction and recognition of males takes precedence in the sample as a whole; women are often absent from or marginally present in constructions of human origins in children’s informational books. Frequency data shows a numerical dominance of males in both the text and images of the sample. The most disparity is evident in the images in which a statistically significant difference exists between both the number of images containing males and the number of individual males depicted and the number of images containing females and number of individual females depicted. Fully 92% of images contain a male or males, while 35% depict females. While 116 or 63% of the images are men-only, women-only images total 12 or 0.07% of the entire sample. Only one book contains more depictions of females than males, *Lucy Long Ago: Uncovering the Mystery of Where We Came From* by C. Thimmesh. As this book focuses on the description of a set of female fossilized remains, the images of the book depict the imagined form and behavior of the female whose remains are discussed.

The message of such a disproportionate representation of males and females is that men are the primary actors in human evolution and as such their actions are worthy of documentation and visualization while those of females are of marginal importance. Feminist critiques acknowledge the lack of women in conceptualizations of human evolution noting that most scholarly perspectives focus on the actions of men resulting in partial and misleading constructions of human origins (Zihlman & Tanner, 1974). While the sample books are accurate for the time in which they were published in the traditional sense, the under-representation of females in the sample results in an incomplete view of
human origins. The traditional evaluation schemas of the field of LIS that focus on accuracy of facts could fail to detect the partiality of models of human evolution available to child readers in the sample.

This incomplete view of human evolution is furthered by disparities in the manner in which men and women are depicted. Placement of a figure in an image affects the visibility of the figure and relative placement can be utilized to focus attention on some figures while regulating others to positions of secondary consideration (Berger, 1972). Over 70% of individual male figures are featured in the foreground of images, while 54% of female figures are depicted in the foreground of images. When males and females are depicted in the same image, males are almost always featured in the foreground of the depiction while females are background figures. Of the 51 images that depict both males and females 18 or 35% feature the activities of males in the foreground, while 5 images or 10% feature women in the foreground. Thus, it is more likely to encounter an image that features males and male activity than it is to encounter an image that features females and female activity.

What is actually portrayed in the images of the sample is male activity. Illustrations of camp and cave settings are representative of an outsider’s gaze onto a scene of prehistoric life. The data indicate that male activities, more often than female activities, are in the forefront of images and thus are the focus of the gaze. The predominance of males in the foreground of images results in an increased visibility of males and male activities not just due to numerical dominance but also to manner of depiction. Attention has been drawn to the propensity of researchers to count males and females in children’s books as a means of quantifying gender disparity (Clark, 2002). Indeed the majority of
feminist critiques of children’s fiction rely on counts of the number of male and female characters (see: Weitzman, et al., 1972; Stewig & Higgs, 1973; Kolbe & LaVoie, 1981; Barnett, 1986; Fox, 1993; Knowles & Malmkjaer, 1996; Turner-Bowker, 1996; Singh, 1998; Diekman & Muren, 2004; Hamilton, et al., 2006; Crisp, et al., 2011). The present findings suggest that a focus on head counts is not capable of divulging the whole picture of gender visibility in children’s literature.

The focus on collecting data across the sample allowed an examination of change over time and indicates a lack of consistent improvement in terms of parity in the frequency of male and female representation. These findings coincide with previous studies on children’s literature that posit representation and characterization of members of social groups are shaped by the predominate sociopolitical ideology (Grauerholz & Pescosolido, 1989; Lehnert, 1992; Clark et al., 1993; Vandergrift, 1993; Junko, 1998; Apol, 2000; Mallan, 2002; Hixon, 2004; Trousdale, 2005; Mickenberg, 2006). The greatest disparity in terms of overall frequency of males and females in sample books across measures was found in books published between 1950 and 1979, followed by books published in the 1920s-1940s. These trends correlate with societal gender ideology conflicts during each time period. The 1920s have been identified as a period of rejection of traditional gender expectations following the passage of the 19th Amendment and a time of enhanced sexual freedom, while the period between the 1930s and 1970s has been classified as a time of antifeminist sentiment and a renewed focus on traditional gender expectations (Freedman, 1974; Jeffreys, 1985; Rapp & Ross, 1986; Faupel & Werum, 2011). Renewed interest in women’s issues in the 1960s culminated in a second wave of feminist activism that reached a peak in the 1970s and a subsequent third wave in the mid-1990s.
(Nicholson, 1997; Gillis, et al., 2004; Gilmore, 2008). In line with the trends in societal gender conflicts identified, periods of enhanced activism and periods of gender traditionalism, it is logical to infer that during times of feminist activism books would display more parity in terms of gender representation than in times of gender traditionalism. This pattern is evident in the sample: Children are more likely to encounter both male and female actors in children’s books on human origins published after the 1970s, possibly as a result of sociopolitical activism. While these findings are in line with previous research on gender in children’s fiction they expand this view to informational books.

Despite modest changes in the number of males and females portrayed in the sample, disparities still exist in terms of the types of activities with which males and females are associated. Activity associations in the text of the sample suggest only women cook and prepare plants, care for children, work hide, sew, serve as possessions and care for the sick, while only men engage in combat and perform rituals. The images of the sample also depict a gender-differentiated pattern of activity with only men interacting with outsiders and performing rituals and only women sewing. Mostly men make tools and weapons, hunt, teach children, engage in combat and make art. The majority of the twenty images of females making/holding tools depict women crafting tools essential for the female associated activities of sewing and working hide. Hunting is also a primarily male activity with only one depiction of a female hunting.

The range of activities engaged in by both males and females has generally increased over time, but the types of activities that males and females are depicted as performing remains stable. Activities associated with males and females in both the text

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and images of the sample are in line with gender roles in Western and ethnographically researched hunter-gatherer societies.

Why is there a persistence of gendered association with activities in the sample? Comparison of the information included in the sample books to that of information available in contemporaneous professional literature reveals that children’s informational books on human origins recommended by the Children’s Catalog are accurate in accordance to this study’s definition of quality. This accuracy reflects the dependence of the children’s books authors on the available paleoanthropological knowledge; activity associations are consistent with the information available to children’s book authors in both the professional literature and ethnographic research.

Of note are the similarities between the gender roles identified as male and female in Western society and those identified in the ethnographic research. Two possible explanations are viable for the similarities. First, the similarities may be indicative of a real sexual division of labor that is widespread across cultures. Second, the ethnographic data itself may be biased as it was collected and analyzed by members of Western societies; researchers’ gender role expectations may influence their modeling of gender roles in hunter gather societies (Karp & Kendall, 1982; Clark, 1983).

Though the division of labor represented in the sample reflects available archeological and ethnographic data it also reinforces Western traditional gender ideologies. The issue of gender disparity is intensified by a continuing focus on the role of men as hunters, creators and autonomous beings rather than an equitable consideration of the roles of both men and women in prehistory. Even when a wider range of activities is included in books it is predominately males represented as performing the varied tasks.

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The text of *Man in the Making* (Friedman, 1960) includes the largest range of activities performed by both sexes in the sample with references to males performing 20 different activities and reference to females performing 5 different activities. This focus on the varied actions of males is also evident in *Early Man* (Howell, 1968), the sample book with the largest range of depicted activities for both sexes, that includes images of males performing 10 different activities and images of females performing 5 different activities.

Feminist critiques of scholarly models of human origins do not charge that there exists evidence that females hunted or performed male associated activities but instead locate females in models of human evolution by highlighting the activities of women suggested by archeological and ethnographic data. Movements to locate women in prehistory originating in the 1970s attempt to provide complete pictures of human origins by documenting the role of women as traditional models have documented the roles of men. The sample books reflect the available data on the types of activities performed by males and females but fail to incorporate the concept of feminist models of human origins that locate women in prehistory. Children's books do not incorporate professional literature that criticizes predominate models of human evolution as bias and present alternative views of prehistory.

In other words, models of human origins, as presented to children in the sample, mirror the traditional approaches of paleoanthropologists in concentrating almost exclusively on the roles of males in prehistory. These traditional scholarly models and the subsequent popular manifestations in children's books marginalize female activity. In *The First Men* (May, 1968) females are featured solely as part of the prehistoric scenery located only in the background of a single image. The persistent notion of the predominant role of
males in prehistory is exemplified by *The Story of Mankind* (Van Loon, 1922), *Man’s First Million Years* (Lucas, 1941) and *The Origins of Man* (Napier, 1969), as they exclusively focus on the actions of males, suggesting that women did not contribute to the evolution of humankind. There are no sample books that only discuss females in prehistory.

The influence of available knowledge is also reflected in the study findings on locale. Prior to the 1950s it is more common to encounter depictions of both sexes in camp and cave settings. Beginning in the 1950s it is more common to encounter both males and females in open landscapes; during the 1950s and 1960s women are almost exclusively depicted in open landscapes, a trend that generally continues in more recently published books. Constructions of human origins developed prior to the 1940s relied primarily on a few archeological finds located in caves including remains at Zhoukoudian (Black, et al., 1933; Pei, 1932) and La Chapelle-aux-Saints. As these findings provide the raw materials from which constructions of human origins are developed for children’s books, it follows that individuals would be located in camp and cave settings in books published during this period. Discoveries of hominin remains in the 1950s in open landscapes that suggested a human lineage that includes apes allowed for consideration of a new setting for prehistoric life.

As a whole, children’s informational books on human origins emulate their scholarly analogues and promote an equivalently male centered view of human evolution. When women are mentioned or depicted it is usually peripheral. Though these specific roles are supported by anthropological data the marginalization of women’s activities in prehistory serve to further Western gender stereotypes and suggest such ideologies are inherent and have existed since the origin of humans (Gifford-Gonzalez, 1993). The male centered
models of human origins in the sample show that feminist critiques of traditional scholarship on human evolution that charge the roles of women in prehistory have largely been ignored due to a focus on hunting and other male activities are realized in popular models of human evolution for children as well (Slocum, 1975).

However, some contemporary models of human origins in children’s books have begun to acknowledge the activities of females in prehistory, most likely as a response to new archeological evidence, awareness of alternative models of human origins and changing gender politics. For example, recent anthropological research has increased understanding of Paleolithic art (Chazine & Noury, 2006; Sharpe & Van Gelder, 2006; Snow, 2006) and this new data are reflected in the sample, as females are increasingly associated with productive and creative activities in the most contemporary books. This can be viewed as new data being used to help locate females in contemporary accounts of prehistory for children. However, it is of note that the images of the sample that feature depictions of Paleolithic artists producing cave art still reflect traditional ideas of Paleolithic art by depicting only male artists.

Additionally, *Traces of Life: the Origins of Humankind* (Lasky, 1989) is the only sample book that includes a “March of Progress” illustration that utilizes both male and female figures. The inclusion of female figures in the renderings of the evolutionary path of humankind uniquely locates women in prehistory through the modification of a traditional and iconic means of illustrating human origins (Gould, 1989). Of the 18 sample books that

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12 “March of Progress” is the name given to an illustration by Rudolph Zallinger for the 1965 Time-Life book on human evolution titled *Early Man* that traces the evolution of humankind in a linear manner. The title has come to refer to any illustration that depicts human evolution in a similar manner, even those constructed prior to 1965 (Clark, 2009). For the purposes of this paper, March of Progress illustrations are any depictions that trace the evolution of modern humans from an ancestral ape form, even if the progression is not depicted in a strictly linear fashion. The terminology is merely used in an effort to convey to the reader the type of illustration under discussion.

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contain images seven feature a “March of Progress” illustration all using male figures except for the above mentioned title. Of note is the most contemporary book to contain a “March of Progress” illustration, *Lucy Long Ago: Uncovering the Mystery of Where We Came From*, which uses a male figure.

This exemplifies a pattern in the sample of the tendency for illustrations to be more conservative than texts in terms of gender bias. As discussed above the images of the sample largely focus on the activities of males and display less gender parity than the text of the sample books across time. This pattern may be a manifestation of the prevalence of male centered and gender biased professional models and museum representations of human origins. Children’s book illustrations are largely new images cultivated from existing pictorial representations of prehistory. These images, much as their professional counterparts, build upon existing motifs and schemata to conceptualize prehistory resulting in the repetition of traditional biased motifs (Moser, 1998). Standardization of images of prehistoric life is evident in the sample. The relatively conservative and biased nature of the images of the sample also reflects the tendencies of publishers to include reprinted illustrations in lieu of or as accompaniment to new renderings of prehistoric life.

The gender representation findings coupled with the quality findings indicate that the educational value of children’s informational books is dependent upon more than just a consideration of the veracity of facts included. Additionally, changes to the available knowledge and scholarly understanding of aspects of human origins reflected in the information provided in the sample over time suggests that even though the books are accurate the quality of the books as educational resources is dependent upon currency.
Research Limitations

The present study provides valuable information about and identifies issues regarding gender representation in and the quality of children’s informational books on human origins. However, the results are limited to the specific population of books studied. Additionally, the following limitations must be considered as interpretations of the data are formed: Accuracy of frequency counts and identification of males and females in the sample are based on a single rater and this study was restricted to books that are informational in nature.

Implications for Practice

Although the findings of the present study show an increase of female representation in contemporary books it demonstrates the need to consider the manner in which males and females are depicted in children’s informational books. Frequency counts belie equity of gender representation and obscure the modeling of scientific data in the sample. Similarly, traditional assessments of accuracy by LIS professionals may fail to reveal the partial modeling of human origins present in the sample, suggesting that further evaluation criteria are needed to assess children’s informational books. Through critiques and discussions of children’s literature LIS professionals can shape representations of scientific information in children’s informational books.

Additionally, the findings indicate that special attention should be paid to the images of informational books when assessing the merit of their inclusion in a library collection. This is especially salient as advances in technology and media have led to changes in the format of children’s informational books, specifically the increasing visualization of information (Giblin, 2000; O’Sullivan, 2010; Zappy, 2011).
Suggested criteria for evaluating the content of children’s informational books on human origins informed by the present study follow:

**Content:** Does the content reflect contemporary anthropological knowledge? Are the activities of males and females discussed in relatively equitable proportions?

**Illustrations:** Are males and females featured in images in equitable proportions? Do the images reflect current anthropological knowledge?

**Further Study**

Suggestions for further study are as follows. Children’s informational books on other topics could be studied for gender parity and information quality over time; as findings indicate the influence of gender politics on the representation of gender in the sample books other populations of informational books could be examined for similar patterns. An examination of the construction of human origins in books published before and after identified periods of change in gender politics could further explore the trends noted in this study’s findings. Researchers could also examine gender representation in the text and images of textbooks that discuss human evolution. Findings indicate that the images of the books in the sample display less gender parity than the text. Further studies on the images of children’s informational books that explore the level of subject expertise and the authority of source materials of illustrators as well as the amount of collaboration between authors and illustrators could lead to additional insights.

**Conclusion**

LIS professionals and education researchers assert that in order to develop holistic understandings of scientific phenomena children need to be exposed to unbiased and balanced representations (Carter, 1998). Although the books studied were of high quality
as defined by factual accuracy the focus on the representation of males and male activity resulted in partial models of human origins and prehistoric life. Findings indicate the need for children’s books on human origins to consider the activities of females, rather than focus on the actions of males. Changes in information included in the books highlight the importance of currency in terms of amassing quality nonfiction collections.

In congruence with previous research on children’s fiction, this study found that frequency of representations of males and females in children’s informational books on human origins change with societal gender ideologies. However, mere increases in the number of females in books does not address the partial modeling of human evolution in the sample. The need to reconsider how females are represented beyond head counts does not only apply to discussions of human origins for children. Publishers, authors and illustrators should be urged to consider new approaches to modeling prehistoric and historic life for children. Focusing on models that locate both males and females, in an accurate manner, would result in more balanced representations of prehistory. In terms of the present sample such a balanced representation would also acknowledge developments in the field of paleoanthropology that originated in the 1970s and call attention to continued deficits in traditional models of human evolution.

Children’s publishers and authors are in a position to address biases noted in academic models of human evolution. Unlike feminist fairy tales that disregard traditional fairy tale tropes in the interest of fulfilling a social agenda, the balanced models suggested embrace anthropological data while addressing an elucidated bias. Improved authoritative representations would incorporate both the traditional and the alternative: a more equitable consideration of both male and female activities, depictions that highlight both
male and female activities and ultimately a more anthropologically accurate depiction of males and females. These models would move female activity—regardless of the type of activity—from the peripheral to the foreground while maintaining the current visibility of males. Models of human evolution would be enriched and balanced by the inclusion of women and the importance of the work of both sexes would be highlighted alongside the data-supported division of labor. As discussed above the currently identified division of labor reflects traditional Western gender ideologies but the inclusion of the work of men and women in an equal light in the proposed models would serve to diminish stereotypical ideals that emphasize the importance of male activity.

Traditional Library and Information Science evaluation criteria can be expanded to recognize and address partial modeling in children’s informational books. Library and Information Science contextualized research is in a unique position to evaluate children’s informational books as constructed information sources. Librarians are increasingly called upon to provide informational trade books on a variety of topics to supplement the curriculum (Moss, 1991). Awareness of partial models in collections of children’s informational books will allow librarians and educators to address gaps and introduce supplementary information as well as amass informational collections that purposefully address said gaps.
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## APPENDIX A: SAMPLE BOOK DESCRIPTIVE LIST

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Illustrator</th>
<th>Year</th>
<th>Publisher</th>
<th>Text ID</th>
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<tbody>
<tr>
<td><em>Everyday Life in the Old Stone Age</em></td>
<td>Quennell, M. &amp; Quennell, C. H. B.</td>
<td></td>
<td>1922</td>
<td>G. P. Putnam’s Sons</td>
<td>SB1</td>
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<tr>
<td><em>Man Before History: A Short Account of Prehistoric Times</em></td>
<td>Boyle, M. E.</td>
<td></td>
<td>1924</td>
<td>Little Brown &amp; Company</td>
<td>SB3</td>
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<tr>
<td><em>The Child’s Story of the Human Race</em></td>
<td>Coffman, R. P.</td>
<td></td>
<td>1924</td>
<td>Dodd, Mead &amp; Company</td>
<td>SB4</td>
</tr>
<tr>
<td><em>The Early Story of Mankind</em></td>
<td>Clark, M. G. &amp; Gordy, W. F.</td>
<td>Various</td>
<td>1929</td>
<td>C. Scribner’s Sons</td>
<td>SB5</td>
</tr>
<tr>
<td><em>In the Beginning: A First History for Little Children</em></td>
<td>Erleigh, E. V. M.</td>
<td>Adshead, M.</td>
<td>1929</td>
<td>Doubleday</td>
<td>SB6</td>
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<tr>
<td><em>Man’s First Million Years</em></td>
<td>Lucas, J. M.</td>
<td>MacDonald, J.</td>
<td>1941</td>
<td>Harcourt &amp; Brace</td>
<td>SB8</td>
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<td><em>Man in the Making</em></td>
<td>Friedman, E.</td>
<td>Marvin, F.</td>
<td>1960</td>
<td>Putnam</td>
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<td><em>Early Man</em></td>
<td>Howell, F. C.</td>
<td></td>
<td>1968</td>
<td>Time-Life Books</td>
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<td><em>The First Men</em></td>
<td>May, J.</td>
<td>Bjorklund, L. F.</td>
<td>1968</td>
<td>Holiday House</td>
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<td><em>The Origins of Man</em></td>
<td>Napier, J. R.</td>
<td>Wilson, M. C</td>
<td>1969</td>
<td>McGraw-Hill</td>
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<td><em>People of the Ice Age</em></td>
<td>Goode, R.</td>
<td>Palladini, D.</td>
<td>1973</td>
<td>Crowell-Collier</td>
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<td><em>Hominids: A Look Back at Our Ancestors</em></td>
<td>Sattler, H. R.</td>
<td>Santoro, C.</td>
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<td>Lothrop, Lee &amp; Shepard Books</td>
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<td><em>Early Humans</em></td>
<td>Gallant, R. A.</td>
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<td>2000</td>
<td>Benchmark</td>
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<td><em>Lucy Long Ago: Uncovering the Mystery of Where We Came From</em></td>
<td>Thimmesh, C.</td>
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<td>2009</td>
<td>Houghton Mifflin Harcourt</td>
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<td><em>Exploring the Past</em></td>
<td>Croy, A.</td>
<td></td>
<td>2011</td>
<td>Marshall Cavendish Benchmark</td>
<td>SB22</td>
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APPENDIX B: QUALITY COMPARISON SCHOLARLY BOOKS LIST (in Chronological Order)


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APPENDIX C: QUALITY ASSESSMENT CONTENT ANALYSIS PROTOCOL

1) Bibliographic Citation (Text ID)

2) Date of Publication

3) Author Authority: Is the author an expert on human origins? Was an expert consulted? List the experts or sources consulted and their affiliations.

4) Origin: What geographical location does the book identify as the origin (birthplace) of human kind?

5) Date: When does the book state the first hominins were present on Earth? The first humans?

6) Fossils & Archeological Sites: What fossils and archeological sites are discussed by name in the book?

7) Distinguishing Features of Humans: What features are discussed in the book as uniquely human characteristics?


9) Cannibalism: Was there mention of the act of cannibalism performed by early humans? Is the idea of cannibalism by early humans rejected or is it presented as an act performed by early humans?

10) Races: Are modern “races” discussed? How are they differentiated?
APPENDIX D: TEXTUAL GENDER REPRESENTATION ANALYSIS PROTOCOL

Unit of Data Collection: Each textual occurrence of an individual(s) identifiable as a male or female.

Unit of Analysis Text ID: Fill in the sample texts ID number, as indicated by the sample text ID list (Appendix A)

Occurrence ID: Give each unit of data collection encountered in a text a unique two-digit number, beginning with 01 and proceeding upward, without duplication for all units in a given text.

Occurrence Location: Record the page number in the text on which the occurrence occurs.

Gender: Report the gender of the individual(s).
1. Male: indicated by the use of masculine pronouns or titles.
2. Female: indicated by the use of feminine pronouns or titles.

Social Age: Note the description of the social age of each individual.
1. Child: the individual is identified as a child or dependent.
2. Adult: the individual is identified as an adult.
3. Elderly: the individual is identified as an elder.
4. Unable to determine

Social Groupings:
1. Solitary Individual: the actions/attributes of a single individual are discussed.
2. Uni-Gender Group: group of same sex individuals of the same age.
3. Multi-Gender Group: group of males and females of the same age.
4. Children Present: a child or multiple children are noted as accompanying the primary actor, but the grouping is not identifiable as a family unit.
5. Nuclear Family Unit: a pair of adults—one male and one female—and their children.
6. Extended Family Unit: a nuclear family unit plus the presence of additional relatives including grandparents, uncles, aunts, cousins, etc.
7. A statement discussing men in general: a textual occurrence that discusses the activities of men in general.
8. A statement discussing women in general: a textual occurrence that discusses the activities of women in general.
9. Other

Setting: Indicate the surroundings of the individual. Setting may be implied by activity suggested.
2. Cave: enclosed opening in a hillside, mountain or underground formed by natural processes.
3. Open Landscape: any open air site any from camp or cave setting. Can include forest or savannah locations.
4. **Not specified**: the statement does not indicate a location and setting cannot be inferred from suggested activity.

5. **Other**

**Activity**: Indicate all activities in which the individual actor is explicitly engaged for each reference.

1. **Making/Holding/Using Tools**: the individual is engaged in the process of crafting a tool, using a tool (for a task not specified below) or statically holding a tool. Tool in this instance is defined as an implement utilized to perform a task provided the task is not related to hunting or defense.

2. **Making/Holding/Using Weapons**: the individual is engaged in crafting, using (for a task not specified below) or statically holding a weapon. Weapon is defined as an implement with the primary function of inflicting bodily harm or physical damage.

3. **Hunting**: pursuing wild animals or game for food or sport.

4. **Gathering Food**: gathering wild plant resources.

5. **Socializing**: interacting with others in a friendly manner, not for the purposes of accomplishing tasks associated with survival.

6. **Cooking/Preparing Plants**: preparing plant materials for consumption by processing and/or applying heat.

7. **Cooking/Preparing Meat**: preparing meat for consumption by processing and/or applying heat.

8. **Carrying/Caring for a Child**: transporting/holding/having a child on one’s person. Providing care for a child.

9. **Teaching a Child(ren)**: showing, explaining, demonstration or providing information to an individual identified as a child.

10. **Working Hide**: skinning, tanning or processing the hide of an animal.

11. **Sewing**: the act of joining elements together with the use of thread/string.

12. **Interacting with Outsiders**: communicating with individuals identified as outside the social grouping of an individual. Can include trading goods.

13. **Leadership/Innovation**: guiding, directing, controlling, supervising or managing a group of individuals. Leading/innovating the use of novel technology (i.e. discovering fire, etc.).

14. **Combat**: engaging in combat with others or predatory animals, i.e. fighting.

15. **Serving as a Possession**: an individual is treated as a commodity or the property of another.

16. **Grooming**: beautifying oneself including combing one’s hair or adorning one’s body with paint, jewelry, shells, etc.

17. **Caring for the Sick/Wounded**: providing care for the sick or wounded.

18. **Making Art**: the act of producing an artistic product (drawing, painting, etc.).

19. **Performing a Ritual**: performing a religious or solemn rite.

20. **Other**
TEXTUAL GENDER REPRESENTATION ANALYSIS CODING FORM

Book ID:

Occurrence Number:

Occurrence Location:

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APPENDIX E: VISUAL GENDER REPRESENTATION ANALYSIS PROTOCOL

Unit of Data Collection: Each image of an individual or individuals identifiable as male or female.

Unit of Analysis Text ID: Note the sample text’s ID (Appendix A).

Image ID: Give each image serving as a unit of data collection in a text a unique two-digit number beginning with 01 and proceeding upward, without duplication for all units of a given text.

Image Location: Record the page number in the text on which the image is located.

Image Type: Identify the type of image encountered.
   3-D Model: a photographic representation of an artistic rendering not produced using a 2-d medium (i.e., sculpture, model, diorama).
   Imagined Rendering: a non-photographic representation produced using a medium of artistic expression (paint, pencil sketch, etc.).

Image Medium: Identify the particular form of the image.
   Photo of anatomical rendering: a photograph of a reconstruction of the soft tissue of a fossil. The photo may be of a skull or the entire body.
   Dioramic Representation: photograph of a 3-D assemblage of figures often from museums.
   Photo of bones: a photograph of skeletal remains.
   Artist Rendered Scene: a two-dimensional artistic composition of individuals in social grouping or scenes from daily life.

Gender: On the basis of bodily indicators (facial hair, presence or absence of breasts, hair length, etc.) assign each individual a gender (male or female). If indicators are ambiguous or absent denote the individual as “gender ambiguous”.

Age: On the basis of bodily indicators (gray hair, wrinkles, etc.) assign one of three social ages to all individuals depicted: child, adult, elder.

Activity: Indicate all activities in which the individual actor is explicitly engaged.

1. Making/Holding/Using Tools: the individual is engaged in the process of crafting a tool, using a tool (for a task not specified below) or statically holding a tool. Tool in this instance is defined as an implement utilized to perform a task provided the task is not related to hunting or defense.
2. Making/Holding/Using Weapons: the individual is engaged in crafting, using (for a task not specified below) or statically holding a weapon. Weapon is defined as an implement with the primary function of inflicting bodily harm or physical damage.
3. Hunting: pursuing wild animals or game for food or sport.
4. Gathering Food: gathering wild plant resources.

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5. Socializing: interacting with others in a friendly manner, not for the purposes of accomplishing tasks associated with survival.

6. Cooking/Preparing Plants: preparing plant materials for consumption by processing and/or applying heat.

7. Cooking/Preparing Meat: preparing meat for consumption by processing and/or applying heat.

8. Carrying/caring for a Child: transporting/holding/having/breastfeeding a child on one’s person.

9. Teaching a Child(ren): showing, explaining, demonstration or providing information to an individual identified as a child.

10. Working Hide: skinning, tanning or processing the hide of an animal.

11. Sewing: the act of joining elements together with the use of thread/string.

12. Interacting with Outsiders: communicating with individuals identified as outside the social grouping of an individual.

13. Leadership: guiding, directing, controlling, supervising or managing a group of individuals.

14. Making Art: engaged in the act of producing an artistic product (painting, drawing, etc.).

15. Performing a Ritual: performing a religious or solemn rite.

16. Combat: engaging in combat with others or predatory animals, i.e. fighting.

17. Other

18. Grooming: beautifying oneself including combing one’s hair or adorning one’s body with paint, jewelry, shells, etc.

Locale of Individual: For each figure indicate if the individual is depicted in an open landscape, at a camp site or in a cave.

- **Open Landscape**: any open air site away from a camp or cave setting.
- **Camp**: an open-air site of daily living activities and/or temporary residence.
- **Cave**: enclosed space formed by natural processes serving as the site of daily activities and/or a residence.
- **Not Depicted**: No setting is rendered (i.e. a figure is isolated).

Placement of Figure in an Image: For each figure note the position of the individual within the image.

- **Foreground**: part of the image nearest the viewer.
- **Middleground**: the middle of the image.
- **Background**: the area of an image behind the main object of contemplation.
- **Not Applicable**: no setting is available to consider a position.

Posture of the Figure: For each figure note the position of the individual’s body.

- **Standing**: fully up-right position supported by one’s own two feet.
- **Lowered Position**: not fully up-right; squatting, sitting, kneeling, reclining, lying, etc.
- **Other**: position is not obvious, such as only a portion of the body is depicted.

Motion: For each figure indicate if the individual depicted is in motion or stationary.

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**Dynamic Motion:** individual is depicted in the process of moving either parts of their body or their entire body as in walking/running or using hands/arms to perform an action.

**Stationary:** individual is depicted as not moving.
VISUAL GENDER REPRESENTATION DATA SHEET

Text ID: 

Image ID: 

Image Location: 

Image Type: Circle appropriate selection
- 3-D Model
- Imagined Rendering

Image Medium: Select the appropriate choice
- Photo of Anatomical Rendering
- Dioramic Representation
- Photo of Bones
- Artist Rendered Scene
- Other (Describe)__________________________

1. Note the number, gender (male, female, gender-ambiguous) and estimated age (child, adult, elder) of all individuals depicted.

For each figure of identifiable gender:

A. Gender:
   1. Male
   2. Female

B. Age:
   1. Child
   2. Adult
   3. Elder

C. Note the activity being performed:
   1. Making/Holding/Using Tools
   2. Making/Holding/Using Weapons
   3. Hunting
   4. Gathering Food
   5. Socializing
   6. Cooking/Preparing Plants
   7. Cooking/Preparing Meat
   8. Carrying a Child
   9. Teaching a Child(ren)
  10. Working Hide

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11. Sewing
12. Interacting with Outsiders
13. Leadership
14. Making Art
15. Performing a Ritual
16. Combat: engaging in combat with others or predatory animals, i.e. fighting
17. Other
18. Grooming

D. Locale of the figure:
   1. Open Landscape
   2. Cave
   3. Camp
   4. No Setting Depicted

E. Placement in the frame
   1. Foreground
   2. Middleground
   3. Background
   4. Not Applicable

F. Posture of individual
   1. Standing
   2. Lowered
   3. Other

G. Is the individual depicted as in motion or static?
   1. Dynamic
   2. Stationary

For the Image as a whole:

2. Describe the relationship of the image to the accompanying text. Does the image reflect the information presented in the text? Does the image contradict the information presented in the text? Does the image augment information presented in the text? Is the image completely separate from the text in terms of information provided?
FIGURE DATA COLLECTION SHEET

**Text ID:**

**Image ID:**

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