Quantifying Art Historical Narratives

Holland Stam

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Preface

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1 Quantifying Art Historical Narratives

2 Abstract

My project surveys the development of *Janson's History of Art* across its eight editions as well as *Gardner's Art Through the Ages* through its sixteen editions, looking particularly at the change in artist demographic through time. Additionally, this paper investigates which external variables such as artist gender, ethnicity, race, nationality, number of exhibitions at the Museum of Modern Art, and number of exhibitions at The Whitney if any, help predict the magnitude of an artist's inclusion in art history survey texts. I conduct data analysis to assess the demographic representation of artists through editions of *Janson's History of Art* and *Gardner's Art Through the Ages*, a proxy for the art history survey. I compare artist demographics through editions of Janson and Gardner. My findings indicate that coverage of minority artists (defined as non-white and/or from Hispanic or Latino origin and/or female) increases across editions of *Janson's History of Art* and *Gardner's Art Through the Ages*, but remains negligible compared to white male artists not from Hispanic or Latino origin. Moreover, in *Janson's History of Art* through all editions, the percentage of artists who are white is 97.37%, the percentage of artists that are male is 89.99%, and the percentage of artists that are not Hispanic or Latinx is 95.82%. In *Gardner's Art Through the Ages*, through all editions, the percentage of artists who are white is 90.02%, the percentage of artists that are male is 85.69%, and the percentage of artists that are not Hispanic or Latinx is 91.51%. Both texts display a narrative of the history of art as being predominantly white, male, non-Hispanic or Latinx. Regarding nationality, in Janson, 78.51% of the artists are American, British, French, German, and Spanish, which is very similar to Gardner's 76.58% of those five same nationalities. I have chosen to run a linear mixed-effects model with a random effect of the artist's name, to infer the magnitude of the space given to a particular artist divided by the area of the page of the given edition (total space ratio per page), in *Janson's History of Art* and *Gardner's Art Through the Ages,* using the potential predictor variables: artist race, gender, ethnicity, nationality, the count to year of the number of exhibitions an artist has at the MoMA, and the count to year of the number of exhibitions an artist has at The Whitney. The model that best explains the variance in the total space ratio per page per artist per edition uses artist nationality and the count to year of the number of exhibitions an artist has in the MoMA as well as the interaction between those two variables. With a log transformation applied to the outcome variable as it is heavily right-skewed, my linear mixed-effects model yields a conditional r squared of 53.23%. Such denotes that 53.23% of the variance of total space ratio per page given to an artist in a given edition can be explained by the model.

JEL Numbers: C80, Y10, Z11

Key Words: Cultural Economics, Art History, Statistics, Historiography, Data Collection Methodology, Linear Mixed-Effects Modeling.

Data Preparation:

3 MINE HELP

Backward reduced random-effect table:

```
                 Eliminated npar  logLik    AIC    LRT Df Pr(>Chisq)
<none>                      22 -1407.2 2858.3
(1 | artist_name)       0   21 -2255.3 4552.6 1696.2  1  < 2.2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Backward reduced fixed-effect table:
Degrees of freedom method: Satterthwaite

	Eliminated	Sum Sq	Mean Sq	NumDF
artist_race_nwi:moma_count_to_year	1	0.00575	0.00575	1
artist_ethnicity:whitney_count_to_year	2	0.00836	0.00836	1
artist_race_nwi:whitney_count_to_year	3	0.06087	0.06087	1
artist_race_nwi	4	0.01434	0.01434	1
artist_gender	5	0.08807	0.08807	1
artist_ethnicity:moma_count_to_year	6	0.09505	0.09505	1
artist_ethnicity	7	0.01452	0.01452	1
whitney_count_to_year	0	0.94957	0.94957	1
artist_nationality_other:moma_count_to_year	0	2.56307	0.51261	5

	DenDF	F value	Pr(>F)	
artist_race_nwi:moma_count_to_year	533.82	0.0499	0.8232618	
artist_ethnicity:whitney_count_to_year	2174.81	0.0726	0.7876537	
artist_race_nwi:whitney_count_to_year	497.70	0.5282	0.4677161	
artist_race_nwi	484.81	0.1244	0.7244730	
artist_gender	415.45	0.7640	0.3825716	
artist_ethnicity:moma_count_to_year	675.27	0.8247	0.3641252	
artist_ethnicity	486.16	0.1259	0.7228281	
whitney_count_to_year	1091.60	8.2366	0.0041846	**
artist_nationality_other:moma_count_to_year	1312.49	4.4464	0.0005076	***

```
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Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Model found:

```
log(space_ratio_per_page_total) ~ artist_nationality_other + moma_count_to_year + whitney_co
```

Linear mixed model fit by maximum likelihood . t-tests use Satterthwaite's
  method [lmerModLmerTest]
Formula: log(space_ratio_per_page_total) ~ artist_nationality_other +
    moma_count_to_year + artist_nationality_other * moma_count_to_year +
    (1 | artist_name)
  Data: gardnerjanson_museums_mod

     AIC   BIC   logLik deviance df.resid
  2853.1   2937.6 -1412.5   2825.1   3090

Scaled residuals:
    Min   1Q Median   3Q   Max
-3.8692 -0.5597 -0.0344 0.5743 3.6926

Random effects:
 Groups   Name   Variance Std.Dev.
 artist_name (Intercept) 0.1105   0.3324
 Residual   0.1156   0.3400
Number of obs: 3104, groups: artist_name, 394

Fixed effects:
                                                        Estimate Std. Error
(Intercept)   -9.876e-01 3.634e-02
artist_nationality_otherFrench   2.328e-01 5.799e-02
artist_nationality_otherOther   -5.839e-02 5.290e-02
artist_nationality_otherBritish   -1.516e-02 7.357e-02
artist_nationality_otherGerman   -7.793e-02 7.843e-02
artist_nationality_otherSpanish   5.706e-01 1.834e-01
moma_count_to_year   -1.102e-02 6.159e-03
artist_nationality_otherFrench:moma_count_to_year   2.314e-02 7.011e-03
artist_nationality_otherOther:moma_count_to_year   1.534e-02 7.161e-03
artist_nationality_otherBritish:moma_count_to_year   1.379e-02 1.499e-02
artist_nationality_otherGerman:moma_count_to_year   2.203e-02 7.874e-03
artist_nationality_otherSpanish:moma_count_to_year   3.164e-02 8.217e-03
                                                             df t value Pr(>|t|)
(Intercept)   4.890e+02 -27.179 < 2e-16
artist_nationality_otherFrench   4.309e+02   4.015 7.01e-05
artist_nationality_otherOther   5.031e+02 -1.104 0.270219
artist_nationality_otherBritish   4.353e+02 -0.206 0.836813
artist_nationality_otherGerman   4.651e+02 -0.994 0.320904

8
```

```
artist_nationality_otherSpanish                          3.643e+02   3.111 0.002014
moma_count_to_year                                       8.952e+02  -1.789 0.073879
artist_nationality_otherFrench:moma_count_to_year        1.114e+03   3.300 0.000997
artist_nationality_otherOther:moma_count_to_year         8.992e+02   2.142 0.032437
artist_nationality_otherBritish:moma_count_to_year       8.866e+02   0.920 0.358001
artist_nationality_otherGerman:moma_count_to_year        1.125e+03   2.798 0.005228
artist_nationality_otherSpanish:moma_count_to_year       1.852e+03   3.850 0.000122

(Intercept)                                              ***
artist_nationality_otherFrench                           ***
artist_nationality_otherOther
artist_nationality_otherBritish
artist_nationality_otherGerman
artist_nationality_otherSpanish                          **
moma_count_to_year                                       .
artist_nationality_otherFrench:moma_count_to_year        ***
artist_nationality_otherOther:moma_count_to_year         *
artist_nationality_otherBritish:moma_count_to_year
artist_nationality_otherGerman:moma_count_to_year        **
artist_nationality_otherSpanish:moma_count_to_year ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
          (Intr) art__F art__O art__B art__G art__S mm_c__ a__F:_ a__O:_
artst_ntn_F -0.627
artst_ntn_O -0.687  0.430
artst_ntn_B -0.494  0.310  0.339
artst_ntn_G -0.463  0.290  0.318  0.229
artst_ntn_S -0.198  0.124  0.136  0.098  0.092
mm_cnt_t_yr -0.446  0.280  0.307  0.220  0.207  0.088
arts__F:___  0.392 -0.341 -0.269 -0.194 -0.182 -0.078 -0.879
arts__O:___  0.384 -0.241 -0.388 -0.190 -0.178 -0.076 -0.860  0.756
arts__B:___  0.183 -0.115 -0.126 -0.354 -0.085 -0.036 -0.411  0.361  0.353
arts__G:___  0.349 -0.219 -0.240 -0.172 -0.334 -0.069 -0.782  0.687  0.673
arts__S:___  0.335 -0.210 -0.230 -0.165 -0.155 -0.279 -0.750  0.659  0.645
          a__B:_ a__G:_
artst_ntn_F
artst_ntn_O
artst_ntn_B
artst_ntn_G
artst_ntn_S
mm_cnt_t_yr
```

```
arts__F:___
arts__O:___
arts__B:___
arts__G:___   0.321
arts__S:___   0.308  0.586
```

4 Introduction and Context

4.1 Inspiration for Research:

Heading into the second semester of my junior year, I scheduled a zoom meeting with my now undergraduate thesis advisor, Prof. Hans van Miegroet, to ask a few questions about my aspirations after college. He had been my professor for his course, "History of Art Markets," a learning experience at Duke that has permanently altered my worldview. The meeting began with me expressing my enjoyment of the course, and the appreciation of the discussion of transparency in the buying and selling of art. I asked his opinion of whether I should stick to studying architectural history with hopes of going to architecture school, or pivot to do further research under him in his graduate course, "Arts and Markets" that I had enrolled in for that Spring. Towards the end of the meeting, he asked me what I found most interesting about art, to which I replied, "Ever since I took my first Art History course, I've always been curious as to why I am introduced to the works I am. Who is choosing what I study versus what I don't study?" I explained to him. I had initially learned the story of art through Marilyn Stokstad's, *Art History* my final year of high school. At the end of that school year, I inquired to my teacher, Carolyn Paczkowska, in a class discussion, "Why are we studying the works that we have?" The class discussed gatekeepers of art and information and later ended in the conclusion of uncertainty. Prof. van Miegroet looked at me through the computer screen and stated I had found my research question for my Undergraduate Honors Thesis, that I had found my why.

My research began solely looking at how art history textbooks changed through time, then developed into looking at using a linear mixed-effect model with a log transformation on my outcome variable to infer which external variables would if at all work to predict the magnitude of space (of text and of the figure of their work or works) given to an artist in a given book.

4.2 Why *Gardner's Art Through the Ages:*

First published in 1926 by Helen Gardner, *Gardner's History of Art* is widely considered as the first single-volume survey of the world's art.[1] Her introductory survey text far surpassed

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[1] Kader, Themina. "The Bible of Art History: Gardner's Art through the Ages." Studies in Art Education 41, no. 2 (Winter, 2000): 176.

other available works in readability, breadth of coverage, and wealth of illustration.[2] The latest edition, the sixteen, of the art history survey text, was published in 2020. *Gardner's Art Through the Ages* has the longest publishing history and evolution that displays the changing nature of an art history survey text.

Gardner's initial success can be quantified by the statistic that the first two editions, published a decade apart, as stated by art education researcher from Pennsylvania State University, Kader Themina, "sold 260,000 copies, a testimony to the popularity of her book." Additionally, as highlighted by a team of researchers at Purdue in as recent as 2020, "Art history instructors use and rely on Gardner's global coverage…"[3] In a footnote in that same publication, an unnamed art historian, in an email to the authors, states "Gardner's Art Through the Ages is, by a wide margin, the best-selling introduction to the history of art in the English language and the number one test in North American high school and university courses."

Add any more sales information if you can, and state if you cannot find anything else on it.

Though it is unclear where this information is coming from, it is clear that *Gardner's Art Through the Ages* is a phenomenal proxy of how the overall narrative of the history of art is changing through time.

4.2.1 Discourse of Authorship:

(Discourse of dominance through time of the text, find and add sources and if available sales information through time)

REACH OUT FOR SALES DATA TO PUBLISHERS

Britannica

- The lack of a comprehensive single-volume textbook on art history prompted Gardner to write one herself, and the resulting Art Through the Ages (1926) far surpassed other available works in readability, breadth of coverage, and wealth of illustration. It remained a widely used text for decades. In 1932 she published Understanding the Arts, aimed at a wide general audience. A second edition of Art Through the Ages, greatly expanded, appeared in 1936; **the first two editions sold more than 260,000 copies.** Gardner had been named an assistant professor in the Art Institute school in 1929, and in 1933 she became a professor and head of the department of art history. She retired from the Art Institute school in 1943. Despite declining health she managed to complete work on the manuscript of a third edition of Art Through the Ages (published in 1948).

Sources Found to Looking Into:

- Franciscono, Marcel.

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[2] britannica but look if info is on lee's art historian dictionary

[3] purdue 14

1977. "History, Textbooks, and Art: Reflections on a Half Century of Helen Gardner's"Art through the Ages"." Critical Inquiry 4 (2) (Winter): 285. https://login.proxy.lib.duke.edu/login?u rl=https://www.proquest.com/scholarly-journals/history-textbooks-art-reflections-on-half-century/docview/1297337757/se-2?a ccountid=10598.

- Jaffee, Barbara. "9."Gardner" Variety Formalism: Helen Gardner and Art through the Ages" In Partisan Canons edited by Anna Brzyski, 203-224. New York, USA: Duke University Press, 2007. https://doi.org/10.1515/9780822390374-010.

Table 1: Edition Number, Year of Publication, Title, Authorship, and Publisher Over Time of All Cataloged Editions of *Gardner's Art Through the Ages.*

Edition	Year of Publication	Author(s)	Title	Publisher (as listed per Edition)
1	1926	Helen Gardner	Art Through the Ages; An Introduction to Its History and Significance	New York, Brace, Harcourt
2	1936	Helen Gardner	Art Through the Ages; An Introduction to Its History and Significance	New York, Brace, Harcourt
3	1948	Helen Gardner	Art Through the Ages	New York, Brace, Harcourt
4	1959	Helen Gardner; revised by Sumner M. Crosby and the Dept. of the History of Art, Yale University	Art Through the Ages	New York, Harcourt, Brace
5	1970	Revised by Horst de la Croix, Richard G. Tansey	Gardner's Art Through the Ages	New York, Harcourt, Brace
6	1975	Helen Gardner; revised by Horst de la Croix, Richard G. Tansey	Gardner's Art Through the Ages	New York: Harcourt Brace Jovanovich
7	1980	Helen Gardner; revised by Horst de la Croix, Richard G. Tansey	Gardner's Art Through the Ages	Harcourt Brace Jovanovich, New York
8	1986	Horst de la Croix, Richard G. Tansey	Gardner's Art Through the Ages	Harcourt Brace Jovanovich, San Diego, CA

Edition	Year of Publication	Author(s)	Title	Publisher (as listed per Edition)
9	1991	Horst de la Croix, Richard G. Tansey, Diane Kirkpatrick	Gardner's Art Through the Ages	San Diego: Harcourt Brace Jovanovich
10	1996	Richard G. Tansey, Fred S. Kleiner	Gardner's Art Through the Ages	Fort Worth, TX: Harcourt Brace
11	2001	Fred S. Kleiner, Christin J. Mamiya, Richard G. Tansey	Gardner's Art Through the Ages	Fort Worth TX: Harcourt College Publishers
12	2005	Fred S. Kleiner, Christin J. Mamiya	Gardner's Art Through the Ages	Thomson/Wadsworth, Belmont, CA
13	2009	Fred S. Kleiner	Gardner's Art Through the Ages: A Global History	Boston, Thomson/Wadsworth
14	2013	Fred S. Kleiner	Gardner's Art Through the Ages: A Global History	Australia ; United States : Wadsworth, Cengage Learning
15	2016	Fred S. Kleiner	Gardner's Art Through the Ages: A Global History	Boston, MA : Cengage Learning
16	2020	Fred S. Kleiner	Gardner's Art Through the Ages: A Global History	Boston, MA, US : Cengage Learning

Table 4: Authors of *Gardner's Art Through the Ages*

Author Name	Edition Number (Year)	Description
Sumner McKnight Crosby (1909-1982)	4 (1959)	Sumner McKnight Crosby was an American Medievalist architectural historian. He was the principal scholar of St-Denis and chair of the Department of Art History, Yale University, 1947-1953.[4]

Author Name	Edition Number (Year)	Description
Horst de la Croix	5 (1970), 6 (1975), 7 (1980), 8 (1986), 9 (1991)	An Art Historian and professor at San Jose State University from 1957 until his retirement in the early 1980s.[5] He was born in Berlin and came to the U.S. in 1935. He obtained his B.A., M.A., and Ph.D. in Art History from the University of California, Berkeley.[6]
Richard G. Tansey (1919-1998)	5 (1970), 6 (1975), 7 (1980), 8 (1986), 9 (1991), 10 (1995)	An Art Historian and professor at San Jose State University from 1947-1961. He then taught at UCLA for a year, only to return to San Jose State University from 1962-1980. He received his B.A., M.A., and Ph.D. from Harvard.[7]
Diane Kirkpatrick (1933 - present)	9 (1991)	She received her B.A. from Vassar College in 1955, her MA and Ph.D. in Art History from the University of Michigan in 1965 and 1969. She joined the faculty at the University of Michigan in 1968 and retired in May of 2000.[8]
Fred S. Kleiner	10 (1995), 11 (2001), 12 (2005), 13 (2009), 14 (2013), 15 (2016), 16 (2020)	He received his B.A. from the University of Pennsylvania, then his M.A. and Ph.D. in Art History from Columbia University.[9] He was a professor of the History of Art and Architecture and Archaeology at Boston University from 1978 - the present.[10]
Christin J. Mamiya	11 (2001), 12 (2005)	She received her B.A. from Yale University, and her M.A. and Ph.D degrees in Art History from UCLA. She was a professor at the University of Nebraska-Lincoln from 1987-2019.[11]

"Gardner" Variety Formalism: Helen Gardner and *Art through the Ages*

Barbara Jaffee

[4]https://arthistorians.info/crosbys

[5]Little to no information available about Horst de la Croix

[6]Staff Report, Mercury News. "H. DE LA CROIX, SJS PROFESSOR OF ART HISTORY." *San Jose Mercury News (CA)*, March 5, 1992: 3B. *NewsBank: America's News – Historical and Current.* https://infoweb.newsbank.com/apps/news/document-view?p=AMNEWS&docref=news/0EB7195C84C7A20D.

[7]https://scholarworks.sjsu.edu/erfa_bios/240/

[8]http://faculty-history.dc.umich.edu/faculty/diane-m-kirkpatrick/memoir

[9]https://www.bu.edu/archaeology/profile/kleiner/

[10]https://prabook.com/web/fred.kleiner/3746660

[11]https://arts.unl.edu/art/faculty/christin-mamiya

https://editions.lib.umn.edu/panorama/wp-content/uploads/sites/14/2016/11/Jaffee-Art-Historys-Other-Global-Moment-Chicago-1948.pdf

4.3 Why *Janson's History of Art*:

Such a text is claimed to be the most influential art history survey through time by myriad art historians such as Jeffery Wiedman, Zoë Ingalls, John Russell, Alexandra Peers, Elizabeth Sears and Charlotte Schoell-Glass to name a few. Alexandra Peers in her publication for ARTnews.com in February of 2006, claims that "it was Janson who, more than any other art historian, pioneers the 'in and out' celebrity model of art history. There were artists who matter, he argued, and those who didn't."[12] Janson's formation of his history of art is not only arguably the most dominant art history survey over time, but also he holds a reputation of being a gatekeeper of art history. He states at the end of his introduction in the first and second editions that after having read his text, one "shall have joined the active minority that participates directly in shaping the course of art in our time."[13] He recognizes his role as an individual who shapes the narrative of the history of art, while convincing the reader that after having read his text, one has the agency to be a gatekeeper alongside him . Such agency is only granted once one understands his digestion of the most important works and artists through time .

It would be most comprehensive if we were to have access to the total number of sales per edition of Janson's History of Art, to use as tangible data to show the relevance and importance of the text through time. Both publishers, Harry N. Abrams and Prentice-Hall (now Pearson Prentice-Hall) have declined sharing sales information in the aggregate. By leafing through various scholarly publications, there is imperfect data of sale information worth noting when discussing the dominance of Janson's History of Art through time. The text was at its height of sales between when it was initially released in 1962 through H. W. "Peter" Janson's death in 1982 (refer to Table 1 for complete information of each edition). Art historian, Patricia Hills cites in her publication in Artforum, "in 1973 the Janson text had 46% of the market, while Gardner's 5th edition had 24%, followed by Gombrich's, 8.5%, Cleaver with 3% and miscellaneous 'other' with 18.5%."[14] At the time such a report had been made, the first edition (1962), the first edition revised and enlarged (1969) had been released. Additionally, it was written by John Russell of the New York Times in October of 1982 that "well over

[12]Alexandra Peers, "Canon Fodder," Artnews.com, (February 1, 2006), https://www.artnews.com/art-news/news/canon-fodder-135/.

[13]H. W. Janson and Dora Jane Janson, (1963), History of Art: A Survey of the Major Visual Arts from the Dawn of History to the Present Day, First Edition, Second Printing, New York: Harry N. Abrams: 17.

[14]Market Research Report on Introductory Art History, dated March 15, 1972, prepared for McGraw-Hill College Textbook Division and Follow-up Report, dated Spring, 1973. Citation from Patricia Hills, "Art History Textbooks: The Hidden Persuaders," Artforum, (Summer 1976), https://www.artforum.com/print/197606/art-history-textbooks-the-hidden-persuaders-69128.

two million copies have been sold."[15] Russell does not specify whether these sales numbers are solely the first edition of Janson's History of Art, or the first edition as well as the first edition revised and enlarged and the second edition (1977) . He also added that the text had been "translated in 14 languages and is widely regarded as both an essential teaching instrument and a book that can be read and looked at with continuous enjoyment."[16] Here, Russell perpetuates the significance of Janson's survey, as well as providing information about the breadth of Janson's text, reaching more than solely English-reading audience s.

Conversely, Zoë Ingalls in a publication in August of 1995 discussing Janson's relevance through time, cites that "the first edition sold more than a million copies."[17] Though there are informational discrepancies, it is clear that Janson's History of Art was prolific as a survey text of art for over 20 years. The narrative remained significant from the third (1986) through the fifth edition (1995), which were all revised by Anthony "Tony" F. Janson, son of Peter and Dora Jane. Ingalls states that "the fourth edition, published in 1991, sold 21,000 copies the first year and an average of 11,000 copies a year in the past four years. The new fifth edition, has sold more than 13,000 copies since its March release."[18] She continues, "Although its sales have been eclipsed over the last 10 years by another perennial favorite, R.H. Gardner's Art Through the Ages, Janson is still the standard in many people's minds."[19] Notably, she does not mention any total sales information about Gardner's survey text, just that over the past decade (1985-1995), its sales trumped that of Janson' s.

After the sixth edition (2001) and the sixth edition revised (2004) the last with authorship by Tony Janson, Harry N. Abrams and Prentice Hall were unsatisfied by the total sales, as well as the overall structure and content of the text as they were criticized for having lost touch with young readers.[20] At the same moment, Harry N. Abrams sold all rights to the newly formed Pearson Prentice Hall, who recruited new authorship of six various art historians across the United States: Penelope J. E. Davies, Walter B. Denny, Frima Fox Hofrichter, Joseph Jacobs, Ann M. Roberts, and David L. Simon (refer to Table 2). Such change was received negatively by art historians, which is reflected in the text's further decline in sales. [21] It has been

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[15] John Russell, "Prof H. W Janson is Dead at 68; Wrote Best-Selling 'History of Art,'" The New York Times, (October 3, 1982), https://www.nytimes.com/1982/10/03/nyregion/prof-h-w-Janson-is-dead-at-68 -wrote-best-selling-history-of-art.html.

[16] John Russell, "Prof H. W Janson is Dead at 68; Wrote Best-Selling 'History of Art,'" The New York Times, (October 3, 1982), https://www.nytimes.com/1982/10/03/nyregion/prof-h-w-Janson-is-dead-at-68 -wrote-best-selling-history-of-art.html.

[17] Zoë Ingalls, "A Son Revises His Father's Classic Art-History Textbook," The Chronicle of Higher Education, (August 11, 1995), https://www.chronicle.com/article/a-son-revises-his-fathers-classic- art-history-textbook/.

[18] Zoë Ingalls, "A Son Revises His Father's Classic Art-History Textbook," The Chronicle of Higher Education, (August 11, 1995), https://www.chronicle.com/article/a-son-revises-his-fathers-classic- art-history-textbook/.

[19] Zoë Ingalls, "A Son Revises His Father's Classic Art-History Textbook," The Chronicle of Higher Education, (August 11, 1995), https://www.chronicle.com/article/a-son-revises-his-fathers-classic- art-history-textbook/.

[20] Alexandra Peers, "Canon Fodder."

[21] Jeffrey Weidman, "Many Are Culled but Few Are Chosen: Janson's History of Art, Its Reception, Em-

estimated by Bookauthority.com (a cite whose source for this information is very unclear) that the eighth edition revised, published in 2015 has had 2,000 total copies sold, while competing art historical narratives such as Marilyn Stokstad and Micheal W. Cothren's History of Art Vol . 1 has had an estimated 10,000 copies sold since its release in 2017 .[22] Such has left Janson's History of Art as a minor player in art historical narratives today.

Table 2: Edition Number, Year of Publication, Title, Authorship, and Publisher Over Time of All Cataloged Editions of Janson's History of Art.

Edition Number	Year of Publication	Authors	Title	Publisher (as listed per Edition)[23]
1	1963[24]	H.W. Janson with Dora Jane Janson[25]	History of Art: A Survey of the Major Visual Arts from the Dawn of History to the Present Day	Harry N. Abrams, Inc., New York
1 (Revised and Enlarged)	1969	H. W. Janson with Dora Jane Janson	History of Art: A Survey of the Major Visual Arts from the Dawn of History to the Present Day	Prentice-Hall Inc., Englewood Cliffs, New Jersey and Harry N. Abrams, Inc., New York.
2	1977	H. W. Janson with Dora Jane Janson	History of Art: A Survey of the Major Visual Arts from the Dawn of History to the Present Day	Harry N. Abrams, Inc., New York.
3	1986	H. W. Janson; Revised and Expanded by Anthony F. Janson	History of Art	Harry N. Abrams, Inc., New York and Prentice-Hall Inc., Englewood Cliffs, New Jersey.
4	1991	H. W. Janson; Revised and Expanded by Anthony F. Janson	History of Art	Harry N. Abrams, Inc., New York.

ulators, Legacy, and Current Demise." Journal of Scholarly Publishing 38, no. 2 (January 2007): 96. https://muse.jhu.edu/article/209994/pdf.

[22]"100 Best-Selling Art HIstory Books of All Time," Book Authority, https://bookauthority.org/books/best-selling-art-history-books.

Edition Number	Year of Publication	Authors	Title	Publisher (as listed per Edition)[23]
5	1995	H. W. Janson; Revised and Expanded by Anthony F. Janson	History of Art	Harry N. Abrams, Inc., New York.
6	2001	H. W. Janson and Anthony F. Janson	History of Art	Harry N. Abrams, Inc., New York.
7	2007	Penelope J. E. Davies, Walter B. Denny, Frima Fox Hofrichter, Joseph Jacobs, Ann M. Roberts, David L. Simon	Janson's History of Art: The Western Tradition	Pearson Prentice Hall, Upper Saddle River, New Jersey.
8	2011	Penelope J. E. Davies, Walter B. Denny, Frima Fox Hofrichter, Joseph Jacobs, Ann M. Roberts, David L. Simon	Janson's History of Art: The Western Tradition	Pearson Prentice Hall, Upper Saddle River, New Jersey.

4.3.1 Discourse of Authorship Through Editions:

The primary author through the first six editions of Janson's History of Art is Horace Waldemar Janson (1913-1982), colloquially referred to as Peter. He was born in 1913 in St. Petersburg, Russia. His parents were of Swedish and Latvian descent. The family moved to Hamburg, Germany after the Russian Revolution. Janson studied at Munich and then at the University in Hamburg where he was a student of Erwin Panofsky, a prolific art historian known for his contributions to the studies of symbols and iconography in art. In 1935, at the suggestion of his advisor, Janson fled Germany under the sponsorship of Alfred Barr, director of the

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[23]There are discrepancies through the first and sixth editions of only Harry N. Abrams being listed as the publisher on the book itself and Harry N. Abrams and Prentice-Hall both being listed. Harry N. Abrams was the primary publisher through the first sixth editions as Prentice-Hall was their distributor.

[24]I cataloged the first edition, second printing, published in 1963, but the first edition, first printing was published in 1962. There is no different between printings.

[25]Dora Jane Janson is only listed upon opening the book to the title page. She is not listed anywhere on the exterior of the Janson's History of Art across the first edition, second printing, first edition (revised and enlarged) fourteenth printing, nor the second edition.

Museum of Modern Art in New York. Janson studied at Harvard between 1935 and 1942, completing a PhD in art history. His most significant professorial position began in 1949, where he was appointed professor and later chairman of the department of art at New York University. He remained in such a role for 25 years as he grew the department's prestige, solidifying its reputation as one of the most conservative art history programs in the country. A decade later, in 1959, Janson issued a book titled, Key Monuments of the History of Art, in efforts to aid his undergraduates in their study of art as the availability of good personal study images were not easily accessible. Such publication sparked Janson's History of Art released in 1962, a survey of art written with his wife, Dora Jane Janson.

Born Dora Jane Heineberg (1916-2002) in Philadelphia in 1916, she shared a passion for art with Peter. The two met in Cambridge, Massachusetts as she attended Radcliffe College as an undergraduate student while Janson was studying at Harvard. Dora Jane Janson worked with her husband on many publications, but her most notable achievement came in 1971 when she wrote an exhibition catalog for the Nasher Museum of Art at Duke on Art Nouveau jewelry, titled From Slave to Siren: The Victorian Woman and Her Jewelry from Neoclassic to Art Nouveau. Authorship of Janson's History of Art was handed over to one of the couple's four children, Anthony F. Janson, after the sudden passing of Peter Janson in 1982.

Anthony Frederick "Tony" Janson was born March 30th, 1943 in St. Louis, Missouri. The Jansons moved to New York in 1949, and Tony Janson frequently visited the city's museums as a child and teenager. In 1954, the Jansons spent a year in Europe. In an interview, Tony Janson describes his attitude upon the family's return to New York as one of " total rebellion" eventually causing his parents to search for a school that would engage him better academically.[26] Janson details how he rediscovered a love for learning after enrolling at Riverdale Country School on a full scholarship, and it is at this time that he began to study art history. Janson experimented as an artist himself, and cited his early affection for photography as the reason he was the first to add that medium to a survey textbook of art history. [27] Educated at Columbia and Harvard, Janson was asked to continue the work of his father as author of Janson's History of Art . Unable to revise the entire textbook in time, Janson "added women, which was long overdue."[28] and photography to the textbook for the third editio n. After returning from the Vietnam War, Janson earned his PhD in art history from Harvard and went to teach at the College of Charleston before transitioning to a career as chief curator of the Indianapolis Museum of Ar t. In 1984 Janson moved to the Ringling Museum of Art in Sarasota, Florida, and then he was Chief Curator of the North Carolina Museum of Art from 1989 to 199 3. Janson spent the rest of his career at UNC Wilmington and retired in 200 2. The last edition of Janson's History of Art that he worked on was the sixth revised, and he

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[26]Anthony Janson, interview by Sherman Hayes, University of North Carolina Wilmington Archives and Special Collections, (March 15-19, 2007): 11.

[27]Anthony Janson, interview by Sherman Hayes, University of North Carolina Wilmington Archives and Special Collections, (March 15-19, 2007): 7.

[28]Anthony Janson, interview by Sherman Hayes, University of North Carolina Wilmington Archives and Special Collections, (March 15-19, 2007): 9.

viewed his revisions of Janson's History of Art as more in line with his father's approach than the rest of his own scholarshi p.

The seventh and eighth editions were rewritten by a group of art historians across the United States: Penelope J. E. Davies, Walter B. Denny, Frima Fox Hofrichter, Joseph Jacobs, Ann M. Roberts, and David L. Simon. In Table 2, each author's name, gender, ethnicity and nationality are listed, with question marks next to Frima Fox Hofrichter and Ann M. Roberts' nationality and Joseph Jacob's ethnicity as such information could not be found with full certainty. We observe here a desire to diversify authorship in efforts by the publisher to cater to young readership, and increase sales. Notably, there is gender diversity, with a fifty-fifty split of male to female authorship, though a complete lack of racial diversity, which is a notion reflected additionally in the text itself. Since the Janson name has left the book's authorship, the text has declined significantly from being the most dominant art historical survey.[29]

Table 3: Authors of the Seventh and Eighth Editions of Janson's History of Art.

Author	Description (As listed by Publisher)
Penelope J. E. Davies	Associate Professor at the University of Texas, Austin. She is a scholar of Greek and Roman art and architecture as well as a field archaeologist. She is an author of Death and the Emperor: Roman Imperial Funerary Monuments from Augustus to Marcus Aurelius, and winner of the Vasari Award.
Walter B. Denny	Professor of Art History at the University of Massachusetts at Amherst. In addition to exhibition catalogues, his publications include books on Ottoman Turkish carpets, textiles, and ceramics, and articles on miniature painting, architecture and architectural decoration.
Frima Fox Hofrichter	Professor and former Chair of the History of Art and Design department at Pratt Institute. She is the author of Judith Leyster, A Dutch Artist in Holland's Golden Age, which received CAA's Millard Meiss Publication Fund Award.
Joseph Jacobs	An independent scholar, critic, and art historian of modern art in New York City. He was the curator of modern art at the John and Mable Ringling Museum of Art in Sarasota, Florida, director of the Oklahoma City Art Museum, and curator of American art at The Newark Museum, Newark, New Jersey.
Ann M. Roberts	Professor of Art at Lake Forest College, she has published essays, articles and reviews on both Northern and Italian Renaissance topics. Her research focuses on women in the Renaissance, and her most recent publication is entitled Dominican Women and Renaissance Art: The Convent of San Domenico of Pisa.
David L. Simon	Jetté Professor of Art at Colby College where he received the Basset Teaching Award in 2005. Among his publications is the catalogue of Spanish and southern French Romanesque sculpture in the Metropolitan Museum of Art and The Cloisters.

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[29] Jeffrey Weidman, "Many are Culled but Few Are Chosen," 94.

4.3.2 Literature Review:

Many are Culled but Few are Chosen: Janson's History of Art, Its Reception, Emulators, Legacy, and Current Demise

The publication by art historian Jeffrey Weidman, released in January, 2007 in the Journal of Scholarly Publishing begins by reviewing in detail the lineage of English-language art history surveys in America, and the Jansons' text therein; discusses in detail the various reviews of the Jansons' and other survey texts, namely Helen Gardner's *Art Through the Ages*, and Marilyn Stokstad et al.'s *Art History.*[30] He concludes that Janson's History of Art functioned as the dominant art history survey through time. Secondly, Weidman discusses the changes of Janson's History of Art between the sixth edition revised, the last edition written by Peter and Tony Janson, and the seventh edition written by the six various art historians (Table 2). He believes that the seventh edition is a disgrace to Janson's text, and the beauty of Janson's analytically writing has been completely stripped in the seventh edition. He also discusses, yet only through a handful of examples, artists and works which were taken out as well as added between the sixth edition revised and the seventh (for a comprehensive understanding of artists taken out and added through time refer to Fig. ___). Notably, such publication does not discuss data in the aggregate when looking at who is included and excluded, and rather only looks in detail at the changes between the sixth edition revised and the seventh edition.

Revising Art History's Big Book: Who's In and Who Comes Out?

This article published by Randy Kennedy in March of 2006 in the New York Times, also discusses the change between the sixth edition revised and the seventh edition of Janson's *History of Art.*[31] Kennedy looks at only a few artists and works who leave and are added, particularly baffled by the exclusion of James Abbot McNeill Whistler's Arrangement in Black and Gray: The Artist's Mother. He interviews Sarah Touburg, an editor of the seventh edition who claims that upwards of 25% of the book's content had been altered between the sixth edition revised and the seventh edition. Interestingly, Kennedy claims that the new book adds more women and it uses art much more as a way to discuss race, class and gender. Such an observation is not reflected in our data, which can be seen in figures ___, ____, and ____. This publication also discusses the dominance and influence that Janson's History of Art has had over time, as well as its decline as the best-selling art survey in recent years. Kennedy states that a shift in authorship was done in efforts to revitalize Janson's relevance to younger audiences. Though this publication discusses the change between two editions, Kennedy does not do so in the aggregate.

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[30] Jeffrey Weidman, "Many Are Culled but Few Are Chosen: Janson's History of Art, Its Reception, Emulators, Legacy, and Current Demise." Journal of Scholarly Publishing 38, no. 2 (January 2007): 85-107. https://muse.jhu.edu/article/209994/pdf.

[31] Randy Kennedy, "Revising Art History's Big Book: Who's In and Who Comes Out?" New York Times, (March 7, 2006), https://www.nytimes.com/2006/03/07/arts/design/revising-art-historys-big-book- whos-in-and-who-comes-out.html.

Discussions and Depictions of Women in H. W. Janson's History of Art, Fourth Edition

Art historian Paul E. Bolin discusses gender inequality through the first four editions of *Janson's History of Art.*[32] He states that a primary criticism of Janson's text is its lack of attention given to the importance of work of women artists. The first two editions did not include any women, then there was an influx of female artists when Tony Janson claimed primary authorship for the publication of the third edition in 1986. Bolin argues that even with the edition of female artists in the third and fourth editions, there is still not enough representation and that additionally the fashion in which Tony discusses female artists is apologetic and at times problematic. Bolin uses simple statistics in his discourse, having counted a total of 9 out of the 28 new artists added to the fourth edition as female. Bolin does not discuss racial discrimination, nor does he use complete data in the aggregate when looking gender discrimination.

4.4 Significance of Research:

As far as I am aware, there has not been research done in the aggregate, quantitatively analyzing the change over time specifically regarding artist demographic in *Janson's History of Art* nor *Gardner's Art Through the Ages.* My research is significant as it efficiently shows the gaps of representation in terms of gender, nationality, race, and ethnicity that have not been deeply touched on by previous scholars. As mentioned in my literature review of publications that discuss *Gardner's Art Through the Ages,* the closest research I have found to my own was published by The University of Chicago Press Journals in 2020 in which two professors and library assistant out of Purdue University, randomly selected and cataloged information from the first, fifth, twelfth and sixteenth edition. They were focused on how the length of the book changes through time, the type of image changed through time, how the percent of color images change through time, and how the number of suggested readings changes through time. My research has more breadth, as I scraped information from all 16 editions of *Gardner's Art Through the Ages,* as well as *Janson's History of Art* and working less with how the book itself was changing, but more so how the artist's included changes through time.

Secondly, my research looks at how the area given to particular artists changes through time and which, if any, external variables can help account for the variance of such. As mentioned in my abstract, I use a linear mixed-effects model with a random effect of the artist's name, to infer the magnitude of the space given to a particular artist divided by the area of the page of the given edition (total space ratio per page), in *Janson's History of Art* and *Gardner's Art Through the Ages,* using the potential predictor variables: Artist Race, Artist Gender, Artist Ethnicity, Artist Nationality, the count through time of the number of exhibitions an artist has at the MoMA, and the count through time of the number of exhibitions an artist has at The Whitney. The model that best explains the variance in the total space ratio per page per artist

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[32] Paul E. Bolin, "Discussions and Depictions of Women in H. W. Janson's History of Art, Fourth Edition," Journal of Social Theory in Art Education, Vol. 15.(1996), pp. 146-159. https://core.ac.uk/download/pdf/51288476.pdf.

per edition uses artist nationality and the count through time of the number of exhibitions an artist has in the MoMA as well as the interaction between those two variables. With a log transformation applied to the outcome variable of the as it is heavily right-skewed, my linear mixed-effects model yields a conditional r squared of 53.23%. Such denotes that 53.23% of the variance of total space ratio per page given to an artist in a given edition can be explained by the artist's nationality and the count through time of the number of exhibitions an artist has at the MoMA. This type of statistical analysis as far as I am aware has not been done in regards to looking at how art historical survey texts evolve. My research works to explain how the authors of *Janson's History of Art* and *Gardner's Art Through the Ages,* operate while choosing which artists are given any particular amount of space in their publications.

4.5 Research Questions:

1. What are the demographics (artist gender, race, ethnicity, nationality) of artists included in each edition of Janson's History of Art (from 1962-2011) and Gardner's Art Through the Ages (from 1926-2020) looking at two-dimensional works after c. 1750?

   Hypothesis: *Janson's History of Art* and *Gardner's Art Through the Ages* will include more female, nonwhite, Hispanic or Latinx artists over time; however, these artists will still be dramatically underrepresented compared to white male artists. Moreover, race and ethnicity will be more of a limiting factor than gender.

2. Which variables (artist gender, race, ethnicity, nationality, number of exhibitions at the MoMA or The Whitney) if any, predict the magnitude of an artist's inclusion in art history survey texts (*Janson's History of Art* and *Gardner's Art Through the Ages*)?

   Hypothesis: I hypothesize demographic information per artist will play a large role in accounting for the total variance in `space_ratio_per_page_total`. The type of race, gender, nationality, and ethnicity of an artist in theory highly impacts how much they are highlighted and discussed in introductory art history texts. Additionally, I hypothesize that if a given artist has many exhibitions in the MoMA or The Whitney, such would additionally account for variance in the outcome variable `space_ratio_per_page`. The notion behind such a hypothesis is that if an artist is being put on exhibition, they are likely to be discussed more in introductory art history texts.

5 Methodology:

5.1 Data Collection:

5.1.1 Textbooks:

Scope: I collected data from 25 different books. I cataloged 9 different books of *Janson's History of Art*, spanning from 1963 to 2011. Additionally, I cataloged 16 different books of *Gardner's Art Through the Ages,* spanning from 1929 to 2020. I used the particular scope of works produced after c. 1750 that were two-dimensional. This scope allowed me to collect information more quickly to understand how the books were changing over time. Across all 25 books, there are a total of 3162 observations, which is the sum of the count of artists in every book. In the finalized, gardnerjanson_museums data set, there are 14 different variables cataloged (for further information about each variable, reference the Data Dictionary). There are a total of 414 unique artists.

Outcome variable:

`space_ratio_per_page_total` = I measured with a ruler with centimeters, the length and width of text per work per artist. If the area of text was not a rectangle, I additionally collected the length and width of any extra text. I then used excel to calculate the total area of the text per work per artist. Then I additionally measured the length and width of the figure in the book of the work itself. Again, using excel, I calculated the area of the figure of the work. I then added together the area of figure of a work with the area of text written about the work, to create a variable of total space given to a work. In order to achieve a ratio between total space and the area of a page is in a respective book, as they are inconsistent, I divided the total area of a page from a respective book with the total space given to a work by an artist in a respective book.

Demographic variables:

`artist_nationality` = I recorded the nationality of the artist as listed by the text. In the case the nationality of the artist was not listed, I would do a quick google search to further research their nationality. If I couldn't find their nationality, I listed such as N/A.

`artist_gender` = I recorded the gender of the artist as listed by the text. In the case the gender of the artist was not listed, I would do a quick google search to further research their gender. If I couldn't find their gender, I listed such as N/A.

`artist_race` = I recorded the race of the artist as listed by the text. I categorized race based on the guidelines of the US Census.[1] In the case the race of the artist was not listed, I would do a quick google search to further research their race. If I couldn't find their race, I listed such as N/A.

`artist_ethnicity` = I recorded the ethnicity of the artist as listed by the text. Similarly to race, I categorized ethnicity based on the guidelines of the US Census.[2] In the case the ethnicity of the artist was not listed, I would do a quick google search to further research their ethnicity. If I couldn't find their ethnicity, I listed such as N/A.

Identifying Variables:

`artist_name` = The name of the artist as listed by the respective book. At times, each book would spell names slightly differently, so I standardized names across editions as well as across museum exhibition data for the MoMA and The Whitney.

`year` = I recorded the year of publication of each book.

`edition_number` = I recorded the edition number of each book.

`book` = I recorded which book, either Gardner or Janson, the work was mentioned.

Selection: As argued in the Introduction and Context, *Janson's History of Art* and *Gardner's Art Through the Ages,* are the two most renowned and significant art history introductory texts through roughly the last century.

Limitations: I have limited my data collecting in *Janson's History of Art* and *Gardner's Art Through the Ages* to only including two-dimensional art made after c. 1750. This omits sculpture and architecture and how the story of art changes from the beginning of time to c. 1750. I did such as I am most interested in how the diversity of artists changes through editions, and because it only took roughly 1/5 of the time to catalog as I was only cataloging roughly 1/5 of each book. Additionally, two-dimensional works are more frequently included in museum exhibitions spaces than works of sculpture and architecture. My research would be more robust and complete had I cataloged every work in every edition. I am fully aware of this limitation, yet I believe my conclusions are significant within my scope.

5.1.2 Museum Data:

Scope: My second research question is looking at if / how an artist's inclusion in museums exhibitions impacts the amount of total area an artist is given in a particular book. I initially began this research as a group project for a class titled, "Art Markets." In order to collect

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[1] https://www.census.gov/topics/population/race/about.html.
https://www.mobap.edu/wp-content/uploads/2013/01/US-Census-Bureau-Definitions-of-Race-and-Ethnicity.pdf#:~:text=Definition%3A%20The%20U.S.%20Census%20Bureau%20adheres%20to%20the,Hispanics%20and%20Lat

[2] https://www.mobap.edu/wp-content/uploads/2013/01/US-Census-Bureau-Definitions-of-Race-and-Ethnicity.pdf#:~:text=Definition%3A%20The%20U.S.%20Census%20Bureau%20adheres%20to%20the,Hispanics%20and%20Lat

information regarding museum exhibitions, my colleague, David Smoot ('21), web scraped the MoMA's website for the entirety of its catalog history from when its doors first opened in 1929 through the date he scraped the MoMA's website which was March 14th, 2021. He did the same thing with The Whitney's website and web scraped their exhibition history from 1933 through when he scraped the website, March 30th, 2021. There was a total of 10,630 observations in the MoMA data set and 13,736 at The Whitney. An observation is an appearance of an artist in an exhibition.

Selection: The Whitney and the MoMA were chosen as they are located in New York City, arguably the center of the art world as we know it, and because of the relative accessibility of historic exhibition data.

Limitations: The inclusion of more museums, both domestically and internationally would lend the museum data sets greater power to provide context, and an independent metric for the importance of the exhibition, such as press coverage, would be more useful as a comparison to the `space_ratio_per_page_total` in the textbook than the number of exhibitions. Also, The Whitney appears to only list their annual shows on their website prior to 1997, so only the MoMA has complete data.

I finished my data collection process with four separate data sets. I had one in which I collected demographic and total space information for the nine books of *Janson's History of Art,* and a second doing the same for the sixteen books of *Gardner's Art Through the Ages.* I then had a data set of the MoMA's exhibition history from 1929-March 14th, 2021 and lastly a data set of The Whitney's exhibition history from 1933-March 30th, 2021.

5.2 Data Preparation:

In order to create one data set, gardnerjanson_museums, I went through a number of steps to join data from all four in R Studio. I began with binding the rows from the Janson data set and the Gardner data set. I then created a new variable `artist_unique_id` in which I assigned a number to each artist in alphabetical order across all editions of both books. In some cases, there are artists with multiple works cataloged in a particular edition. I was able to sum the total space per work such that an artist's name would only show up once per edition with a `total_space_per_page_total` value in centimeters squared.

Pivoting to joining The Whitney's catalog history and the MoMA's catalog history with the data set I just created with both Janson and Gardner observations, I had to create a variable called `whitney_count_to_year` and `moma_count_to_year` respectively. This is because as the publication year of books changes through time, the amount of exhibitions that are given to an artist has the possibility to change through time as well.

`whitney_count_to_year` = The count of exhibitions held by The Whitney of a particular artist at a particular moment of time, as highlighted by `year`.

`moma_count_to_year` = The count of exhibitions held by the Museum of Modern Art (MoMA) of a particular artist at a particular moment of time, as highlighted by `year`.

5.3 Model Selection:

5.3.1 Data Preparation for Modeling Purposes:

In order to prepare my data further for the purposes of regression, I had to re-categorize the variable of `artist_nationality` and `artist_race`. Firstly, since there are myriad nationalities recorded through all 25 books, I had to condense `artist_nationality` to `artist_nationality_other` such that I would only receive five varying betas rather than more than thirty.

`artist_nationality_other` = The nationality of the artist. Of the total count of artists through all editions of *Janson's History of Art* and *Gardner's Art Through the Ages,* 77.32% account for French, Spanish, British, American and German. Therefore, the categorical strings of this variable are French, Spanish, British, American, German and Other.

In regard to `artist_race`, there are so few observations of artists who are non-white that when running a regression with a categorizing non-white even further into their respective cataloged races with only a handful of data points is not statistically sufficient nor informative. The buckets of information at the respective race-level were too small and therefore rank deficient. Therefore I created the variable `artist_race_nwi`.

`artist_race_nwi` = The non-white indicator for artist race, meaning if an artist's race is denoted as either white or non-white.

Lastly, I releveled my data such that the baseline demographic of artist reflects the most common category across `artist_race`, `artist_ethnicity`, `artist_nationality` and `artist_gender` respectively which is a white non-Latinx or Hispanic French man.

5.3.2 Linear Mixed-Effects Model:

I chose to use a linear mixed-effects model as the data contains a random effect at the artist level as multiple observations in the data can be by the same artist. Using a linear mixed-effects model with artist name as the random effect eliminates the dependence between observations of the same artist, therefore allowing independence to be satisfied for our model. Additionally, I chose to log transform the outcome variable, the total space ratio per page is extremely right-skewed. Performing the log transformation allows for the residuals to have constant variance (homoscedasticity). In regards to choosing the combination of both main fixed effects and interaction fixed effects, I used a step-wise model selection methodology.

6 MINE HELP

Satterthwaite test, more flexible, looking directly at p-values - non-parametric test - uses different error term, similar to a two same t-test, similar to ANOVA - analysis of variance - checking between different groups -

7 Results

7.1 Descriptive Analysis: Research Question 1

What are the demographics (artist race, gender, ethnicity, nationality) of artists included in each edition of *Janson's History of Art* (from 1962-2011) and *Gardner's Art Through the Ages* (from 1926-2020) looking at two-dimensional works after c. 1750?

7.1.1 Count Through Editions:

Overall Count of Artists in Gardner's Art Through the Ages


```
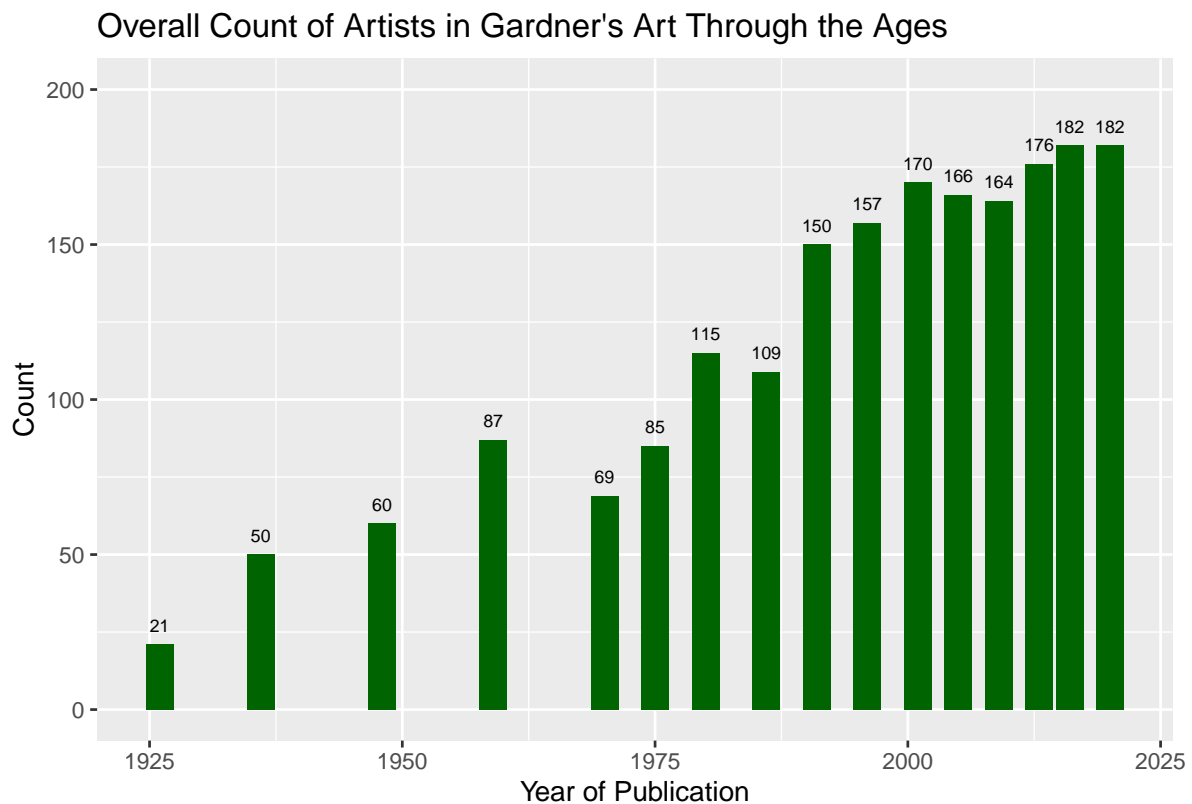# A tibble: 164 x 14
```

```
# Groups:   artist_name [164]
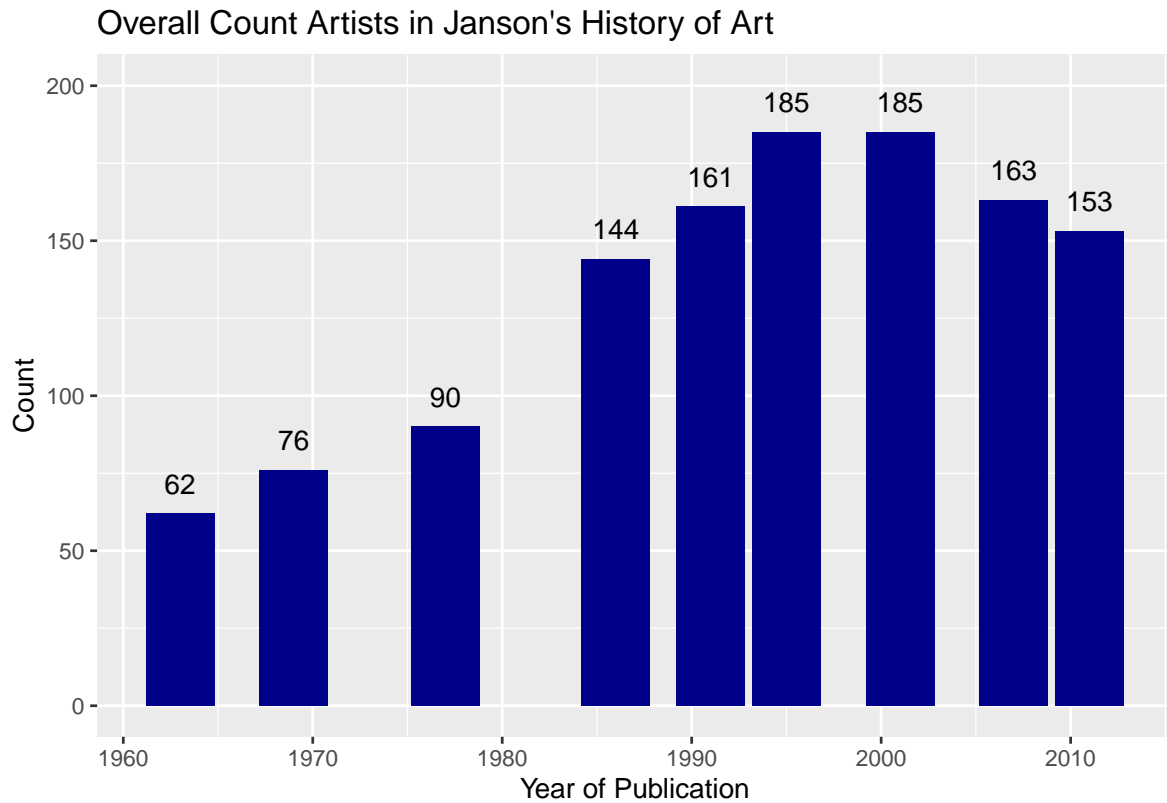   artist_name             edition_number   year artist_national~ artist_national~
   <chr>                            <dbl> <dbl> <chr>            <chr>
 1 Aaron Douglas                       13  2009 American         American
 2 Adolphe William Bougu~              13  2009 French           French
 3 Albert Bierstadt                    13  2009 German-American  Other
 4 Alfred Stieglitz                    13  2009 American         American
 5 Ana Mendieta                        13  2009 Cuban-American   Other
 6 André Derain                        13  2009 French           French
 7 Andy Warhol                         13  2009 American         American
 8 Angelica Kauffmann                  13  2009 Swiss            Other
 9 Anne Louis Girodet Tr~              13  2009 French           French
10 Anselm Kiefer                       13  2009 German           German
# ... with 154 more rows, and 9 more variables: artist_gender <chr>,
#   artist_race <chr>, artist_ethnicity <chr>, book <chr>,
#   space_ratio_per_page_total <dbl>, artist_unique_id <int>,
#   moma_count_to_year <dbl>, whitney_count_to_year <dbl>,
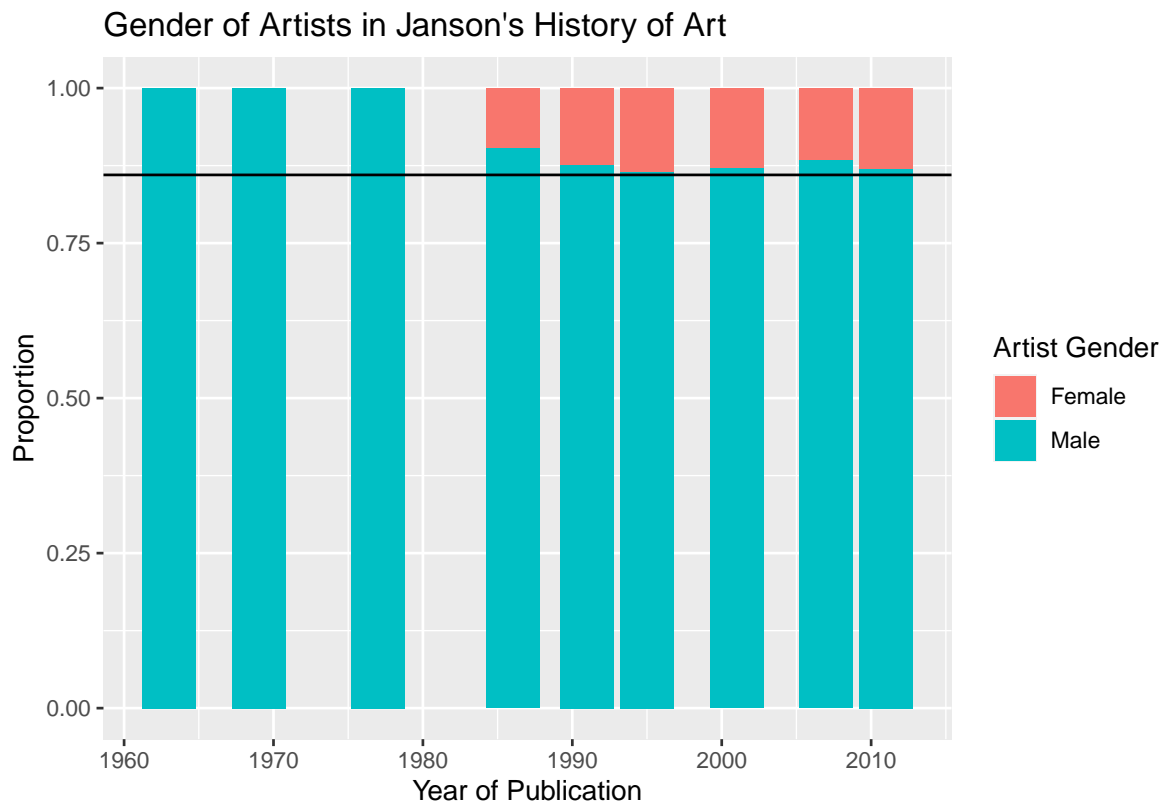#   artist_race_nwi <chr>
```

The shape of the overall count of works by artists in *Gardner's Art Through the Ages* is heavily left-skewed, multimodal, and asymmetrical. Such highlights how through time, more works are, on average, continually added to *Gardner's Art Through the Ages* that are two-dimensional and made after c. 1750. The first edition, published in 1926 by Helen Gardner, only has a total of 21 works. Edition 15, published in 2016 as well as edition 16, published in 2020, have 182 works respectively, which is the maximum amount of works through all editions.

Overall Count Artists in Janson's History of Art

```
# A tibble: 153 x 14
# Groups:   artist_name [153]
   artist_name          edition_number  year artist_national~ artist_national~
   <chr>                         <dbl> <dbl> <chr>            <chr>
 1 Adolphe William Bougu~            8  2011 French           French
 2 Albert Pinkham Ryder              8  2011 American         American
 3 Alexander Rodchenko               8  2011 Russian          Other
 4 Alfred Stieglitz                  8  2011 American         American
 5 Ando Hiroshige                    8  2011 Japanese         Other
 6 André Derain                      8  2011 French           French
 7 Andy Warhol                       8  2011 American         American
 8 Angelica Kauffmann                8  2011 Swiss            Other
 9 Anne Louis Girodet Tr~            8  2011 French           French
10 Anselm Kiefer                     8  2011 German           German
# ... with 143 more rows, and 9 more variables: artist_gender <chr>,
#   artist_race <chr>, artist_ethnicity <chr>, book <chr>,
#   space_ratio_per_page_total <dbl>, artist_unique_id <int>,
#   moma_count_to_year <dbl>, whitney_count_to_year <dbl>,
#   artist_race_nwi <chr>
```

The shape of the overall count of works by artists in *Janson's History of Art* is left-skewed, unimodal and asymmetrical. Such highlights how through time, more works are added to *Janson's History of Art* that are two-dimensional and made after c. 1750. There is then a drop-off of works included in the seventh (published in 2007 with 163 works) and eighth (published in 2011 with 153 works) editions, when new authorship took over. Within edition five (published 1995) and edition six (published in 2001), both written by Anthony Janson, there are the same number of works, the maximum amount included in the text throughout time, 185, as compared to the count of works in the first edition, first printing, 62, and first edition, second printing, 76.

7.1.2 Gender Through Editions:

Gender of Artists in Janson's History of Art

The breakdown of artists' gender through editions of *Janson's History of Art,* has never dipped below 86% male, which is what the horizontal line denotes. Additionally, this visualization shows that the first two editions, (the first three books cataloged: edition 1, first printing, edition 1, second printing, and edition 2), that were written my H. W. Janson and Dora Jane Janson, contains no women. Anthony Janson, who took over authorship for the third edition in

1986, began including discourse surrounding female artists. Notably, he was extremely proud of himself for diversifying his family's art history survey text.[1]

The overall percentage of male artists through all books of *Janson's History of Art* is 89.99%.

Gender of Artists in Gardner's Art Through the Ages

The breakdown of artists' gender through editions of *Gardner's Art Through the Ages,* is marginally more diverse in regard to gender, as the lowest threshold of male artists is just above 81%, which is denoted by the horizontal line. Additionally, this visualization shows that the first edition in 1926 contains no female artists in our scope, but that starting in the second edition in 1936, Helen Gardner began including female artists. *Gardner's History of Art* included female artists in the scope of two-dimensional works after c. 1750 50 years earlier than *Janson's History of Art.*

The overall percentage of male artists through all books of *Gardner's Art Through the Ages* is 85.69%, roughly a 4.5% increase in regard to gender diversity as compared to *Janson's History of Art.*

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[1]anthony janson interview

7.1.3 Race Through Editions:

Race of Artists in Janson's History of Art

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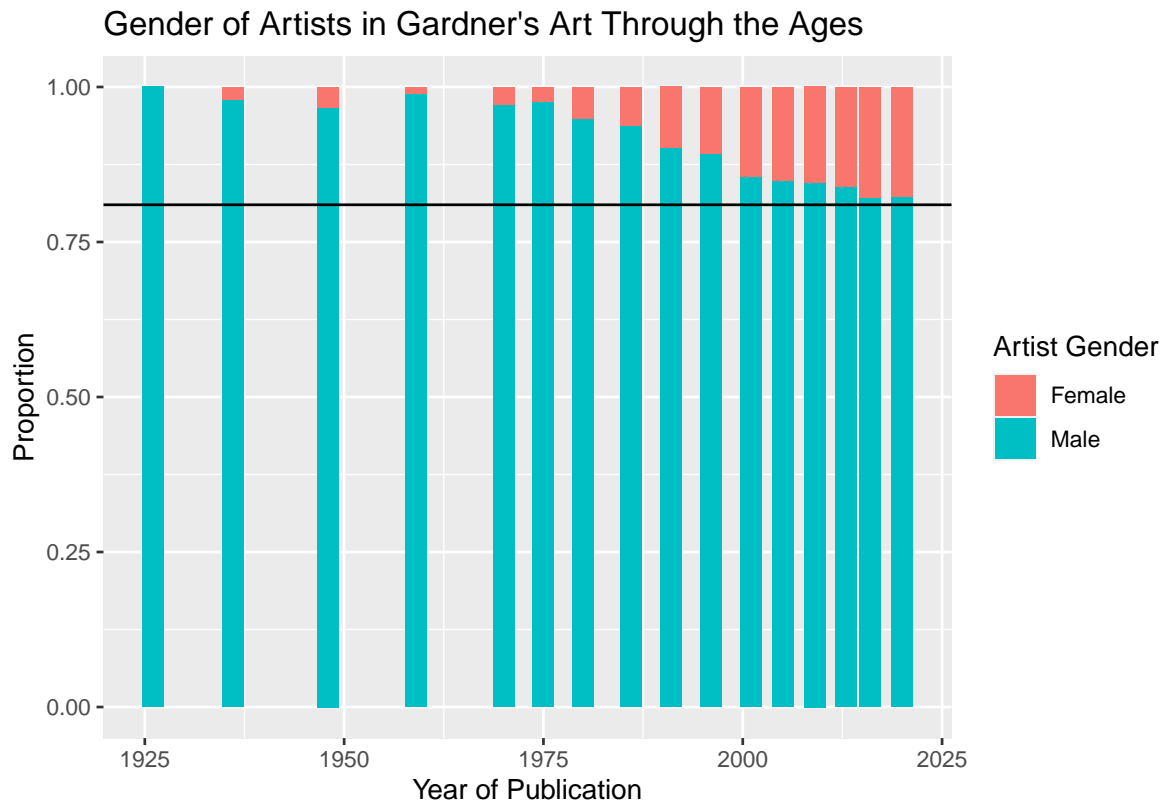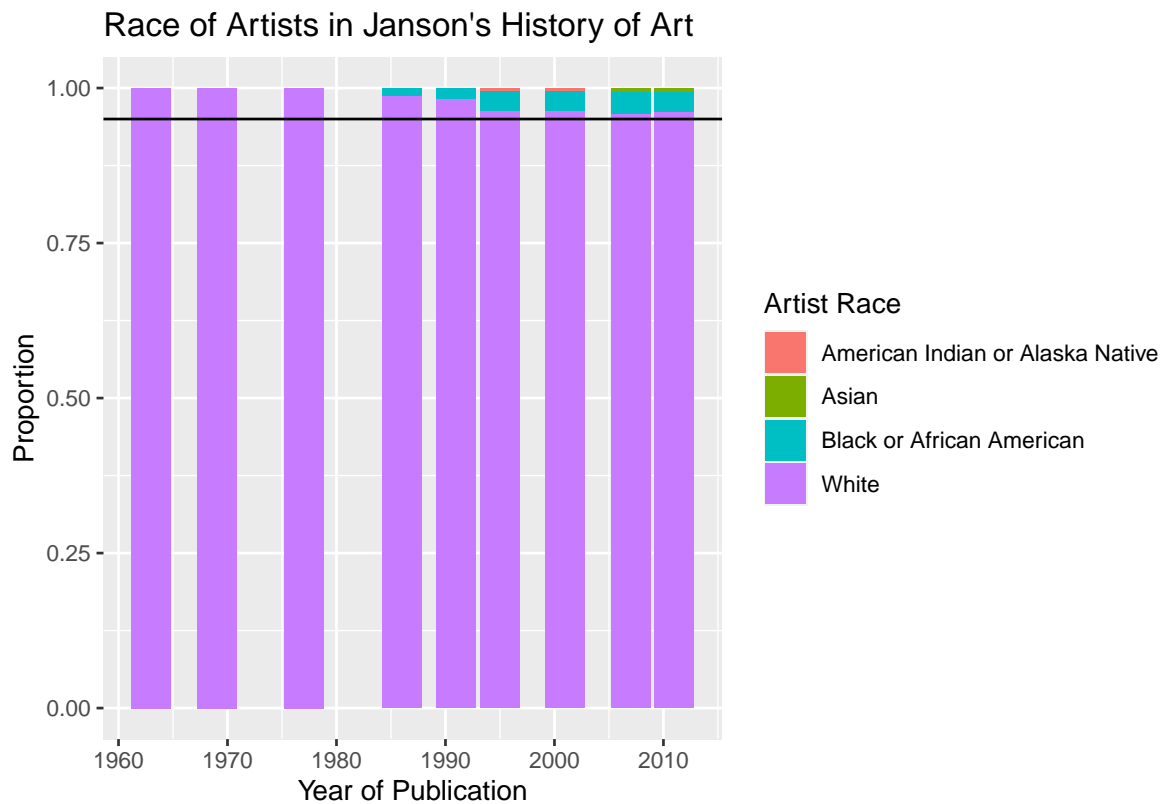# A tibble: 28 x 14
# Groups:   artist_name [8]
   artist_name          edition_number  year artist_nationality artist_nationali~
   <chr>                         <dbl> <dbl> <chr>              <chr>
 1 Augustus Washington               7  2007 American           American
 2 Augustus Washington               8  2011 American           American
 3 Henry Ossawa Tanner               3  1986 American           American
 4 Henry Ossawa Tanner               4  1991 American           American
 5 Henry Ossawa Tanner               5  1995 American           American
 6 Henry Ossawa Tanner               6  2001 American           American
 7 Henry Ossawa Tanner               7  2007 American           American
 8 Henry Ossawa Tanner               8  2011 American           American
 9 Jacob Lawrence                    5  1995 American           American
10 Jacob Lawrence                    6  2001 American           American
# ... with 18 more rows, and 9 more variables: artist_gender <chr>,
#   artist_race <chr>, artist_ethnicity <chr>, book <chr>,
```