

Chapter 8

A CENTURY OF SELF-ESTEEM

Sara Konrath^{1,2} and Paul Allen Anderson³*

¹ Institute for Social Research & Psychology Department,
University of Michigan.

² Department of Psychiatry, University of Rochester Medical Center.

³ Program in American Culture, Department of
Afroamerican and African Studies, University of Michigan.

ABSTRACT

Google n-grams can be used by researchers to track changes across time in the use of specific words and phrases. N-grams includes a corpus of approximately 15 million published books (in various languages). In this chapter we use google n-grams to illustrate temporal trends in the use of the word “*self-esteem*” in English-language books published from 1900-2000. We first review past research on temporal trends in self-esteem and related traits. Next, we discuss some limitations of this research, and how n-grams can help to address such limitations. Finally, we use the “self-esteem” n-gram data to conduct a quantitative sociohistorical analysis of three potential factors that are hypothesized to cause societal-level shifts in self-esteem. These factors are derived from ecological models of human development (e.g. Bronfenbrenner, 1979), and range from the immediate everyday social context of individuals (e.g. family, school), to a mid-level context (e.g. community), to the broader cultural context (e.g. general political and economic environment). We present evidence for these potential causes of changes in the importance of self-esteem. Based on this evidence, we make recommendations as to the best focus of efforts to quell the rising tide of unrealistic self-esteem.

Keywords: self-esteem, historical trends, n-grams, ecological developmental models.

* Address correspondence to: Sara Konrath, Research Center for Group Dynamics, Institute for Social Research, 426 Thompson Street, University of Michigan, Ann Arbor, MI, 48106, email: skonrath@umich.edu.

INTRODUCTION

“To love oneself is the beginning of a lifelong romance.”
~*An Ideal Husband* by Oscar Wilde (1895)

If the psychological term “self-esteem” has an unusually modern ring, the underlying concept of self-love is anything but new. For example, in the *Nicomachean Ethics* (c. 350 B.C.E.), Aristotle dedicated a chapter to the varieties of self-love. The ancient Greek philosopher addressed the ethical questions of whether self-love was distinguishable from selfishness and whether it was categorically disgraceful. He concluded that rather than being categorically unethical, the varieties of self-love can be either virtuous *or* vicious; each case depended on the particular elements of one’s self that are the objects of esteem or love. In this sense, self-love as such was not identical to selfishness and not morally or socially problematic in itself. Aristotle wrote:

The question is also debated, whether a man should love himself most, or someone else. People criticize those who love themselves most, and call them self-lovers, using this as an epithet of disgrace, and a bad man seems to do everything for his own sake, and the more so the more wicked he is—and so men reproach him, for instance, with doing nothing of his own accord—while the good man acts for honor’s sake, and the more so the better he is, and acts for his friend’s sake, and sacrifices his own interest. But the facts clash with these arguments, and this is not surprising. [opening of Ch 8]

One finds a related ideal of virtuous self-love as the intertwining of charity toward self and others in the religious writings of the early Christian period, as in the famous New Testament injunction: “Thou shalt love thy neighbor as thyself” (Mark 12:31). Written around 64 B.C.E. (Theissen & Merz, 1998), the gospel’s author presumed an understanding of virtuous self-love as a precursor to virtuous love for others. Later Christian writers, perhaps Augustine of Hippo most prominent among them, would elaborate a contrast between virtuous self-love and destructive self-love in terms of “original sin” and its warping of sacred love into prideful self-regard (see Augustine, *City of God*).

If the concept of self-love and its moral variations are ancient ones, the use of the specific word “self-esteem” in the English language is relatively modern—though still older than many readers might imagine (see Pickering, 2008). In 1642, John Milton introduced the term “self-esteem” to English literature in positive terms as a disposition that might prevent one from falling into a sinful kind of profane love. He noted his own “self-esteem either of what I was, or what I might be, (which let envie call pride).” Milton used the term similarly in Book VIII of *Paradise Lost* when Raphael appeals to Adam’s “self-esteem, grounded in just and right” in the course of a warning against succumbing to a profane love for Eve (1667). A published use of “self-esteem” in the negative—as sinful pride and self-aggrandizement—came no later than 1657 (from the pen of an ascetic Christian monk). In the following centuries, alternative conceptions of “self-esteem” and its psychological and moral status would continue to rival one another. Of particular interest in the present chapter is the term’s prominence in books since 1900 and its rising prevalence in modern times as a predominantly positive term.

Temporal Trends in Self-Esteem

Since its early beginnings, this word has been used more and more frequently. This chapter uses *google n-grams* to illustrate temporal trends in the use of the word “*self-esteem*” in English-language books published from 1900 to 2000. We specifically selected the twentieth century to examine temporal trends in order to be able to correlate the term’s frequency of use with available statistical indicators, many of which were not available until that century.

Psychological research has found mixed results with regards to the outcomes associated with self-esteem. On the one hand, people with high self-esteem have high satisfaction with their lives (Diener, 1984), and are less likely to be depressed or anxious (Crandall, 1973; Tennen & Herzberger, 1987). On the other hand, excessive self-esteem has been linked to defensiveness and aggressive behavior when threatened (e.g. Baumeister, Smart, & Boden, 1996; Heatherton & Vohs, 2000). It can also be associated with persistence on tasks that do not warrant such effort (i.e. “nonproductive persistence”; McFarlin, Baumeister, & Blascovich, 1984). There remains a contrast between those who believe that higher self-esteem might cure some of society’s ills, and those who focus instead on the dangers of excessive self-love. As Aristotle suggested several millennia ago, the debate raises numerous ongoing issues: how to distinguish “high” from “excessive” self-esteem (which may be a normative distinction transcending any neutral quantitative measurement); whether the conditions of high versus excessive self-esteem are both socially problematic or even equally problematic (despite the personal benefits of high self-esteem); and, perhaps most importantly, how different levels of self-esteem intersect with or interrupt recognizably prosocial attitudes and behaviors like empathy, emotional perspective-taking, and personal relationships with others built on intrinsic concern for the other (here one might again look to Aristotle’s intertwining of the highest forms of self-love and friendship).

Regardless of one’s particular stance on the broad issues under debate, patterns of self-esteem over time in the United States should be of interest. Recent work using cross-temporal meta-analytic methods, which can examine changes in birth cohorts (or generations) over time, has studied changes in self-esteem and related traits. The overall finding is that regardless of how self-esteem is measured (e.g. as a trait, or as a positive self-evaluation), there have been increases in children’s, high school students’, and college students’ self-esteem and positive self-evaluations since the late 1960s (DeWall, Pond, Campbell, Twenge, 2011; Gentile, Twenge, & Campbell, 2010; Twenge & Campbell, 2001; Twenge, Campbell, & Gentile, 2011; See Table 1). At the same time that there have been increases in self-esteem, there have been concurrent increases in narcissism (Twenge, Konrath, Foster, Campbell, & Bushman, 2008; Twenge & Foster, 2010), which is distinguishable from, but positively correlated with, self-esteem (Bosson et al., 2008). Similarly, there have been recent declines in both emotional (i.e. empathic concern) and more cognitive (i.e. perspective taking) forms of dispositional empathy among American college students since the 1980s (Konrath, O’Brien, & Hsing, 2011).

Table 1. Summary of prior research on temporal trends in self-esteem

<i>Measure</i>	<i>Time period</i>	<i>Results</i>	<i>Method</i>	<i>Citation</i>
Trait self-esteem	1968-1994	a) Linear increase in trait self-esteem in college students from 1965-1994. b) Trait self-esteem decreased from 1967-1979, and then increased from 1980-1994, in children. c) No changes in trait self-esteem among high school students.	Aggregate: examined change in mean self-esteem over time.	Twenge & Campbell, 2001
Trait self-esteem	1988-2008	Increases in trait self-esteem among children, high school students, and college students.	Aggregate: examined change in mean self-esteem over time.	Gentile, Twenge, & Campbell, 2010
Positive self-evaluation	1966-2009	Increases in positive self-evaluations among college students.	Aggregate: examined change in mean self-evaluations over time.	Twenge, Campbell, & Gentile, 2011
Song lyrics	1980-2007	Increase in the number of self-references (e.g. I, me) and decrease in the number of more relational references (e.g. us, we).	Individual: examined number of self-references in individual songs over time.	DeWall et al., 2011

Although these studies are important beginnings for an understanding of how self-esteem is changing over time, they are incomplete for a number of reasons. First, it is important that these analyses included children of all ages and college students. However, because of the nature of the methods, these trends are primarily being tracked among research participants who may not represent the US population at large in terms of racial and ethnic diversity, socioeconomic status, and age (i.e. there is no research on the general adult population). It would be worthwhile to compare the findings of prior cross-temporal meta-analyses with new data drawn from a more general source, and to raise new lines of research about if, how, and why psychological variables change over time in society.

Second, researchers have used the best available data, but this data is limited by when self-esteem and self-evaluations were first empirically assessed. The two most commonly used self-esteem scales were developed in the 1960s, and regular measurements of college students' self-perceptions also began in the 1960s (Twenge & Campbell, 2001; Twenge et al., 2011). Because of this, researchers have thus far only been able to examine trends in self-esteem and self-evaluations that have occurred since the 1960s.

An additional problem is specific to the method of cross-temporal meta-analysis itself. Cross-temporal meta-analysis essentially correlates a mean score (e.g. self-esteem) with the year of data collection for that mean. The mean is typically comprised of any available studies that included the personality scale (e.g. the Rosenberg self-esteem scale) in a given year. In other words, the analyses using this method rely on aggregate data. Typically personality researchers correlate individual self-esteem means (i.e. from one person) with some other measure (e.g. happiness). Overall, the effect sizes using an aggregate method can be exaggerated relative to when the individual method is used (e.g. see Trzesniewski, Donnellan, & Robins, 2008). Although there are corrections that can be applied to make these errors less likely (see Twenge et al., 2008), they still may be an issue.

A fourth limitation of the prior work is that researchers typically examine temporal trends in self-esteem only. As summarized above, high self-esteem is not inherently bad; indeed, it is often seen as a desirable and personally beneficial trait and a deficit of self-esteem can be highly disadvantageous both personally and socially. It is instead the condition of excessive self-esteem that is a recognizable personal and social problem. We should be especially mindful of the level of self-esteem relative to other traits that could potentially dampen the negative effects of its extremes (i.e. self-control).

Finally, there are some issues with regard to the use of self-reported data. Although this is an important tool that psychologists use, if more sociocultural methods find converging results (i.e. self-esteem is rising over time), then this would strengthen the prior claims. One of the major problems with self-report data is that people's answers are subject to social desirability biases and low insight (e.g. Nisbett & Wilson, 1977). In addition, examining changes among individual research participants might help us understand what is "in their heads," but would not shed light on larger social or cultural trends (e.g. see Morling & Lamoreaux, 2008). Only one study that we are aware of has addressed this limitation by examining an "at a distance" measure of self-esteem over time, which is a promising beginning. Among other analyses, the researchers counted the number of first person singular pronouns (e.g. I, me, myself) in the top 10 most popular US songs and found that there had been a significant increase in that time period (DeWall, Pond, Campbell, & Twenge, 2011). However, even though this is the only study that we are aware of that uses a more sociocultural method to explore historical changes in self-esteem, unfortunately the authors

only focused on the period from 1980 to 2007. Thus this analysis cannot tell us about longer-term trends within American culture.

Introducing Google N-Grams

As first demonstrated by Michel et al. (2011), google n-grams can be used by researchers to track changes across time in the use of specific words and phrases to examine social and cultural trends, a process that is called “Culturomics.” N-grams includes a corpus of approximately 15 million published books (in various languages). We will demonstrate that n-grams can be a useful tool to address some of the problems inherent to the temporal trends literature in psychology.

First, n-grams can examine trends at a broad sociological level, and as such, there may be a greater opportunity to generalize the trends beyond young people and to society at large. Second, this tool allows us to explore longer-term trends. Although this tool allows researchers to examine historical trends for several centuries, in the current analysis we focus our attention on the twentieth century because a number of important social indicators began to be measured around the beginning of it. Finally, n-grams uses a different method that does not rely on meta-analyzing data at the mean level, or on the self-reports of participants, but can still legitimately gauge sociocultural changes. An example of its utility is evident when tracking the word “slavery” historically. The frequency of the word in books was at its highest point during the Civil War (early 1860s) and there was another peak during the core years of the modern civil rights movement (1950s to 1960s). This accurately reflected cultural interest in the topic and important historical events (Michel et al., 2011).

In the current article we use n-grams to measure historical trends in self-esteem from 1900 to 2000, and examine whether a number of indicators, at various sociological levels, can predict such changes. In doing so, we hope to both document changes in the focus of self-esteem in the long term and point to the strongest potential correlates of such changes. With such an analysis, we may be able to better understand the roots of such changes and perhaps even know where to begin to intervene.

METHOD

The google n-grams website has all data available for anyone to download for free. (See <http://ngrams.googlelabs.com>.) With the help of our colleague Emily Falk, we first downloaded all 1-gram (“string of characters uninterrupted by a space” p. 176, Michel et al., 2011) and 2-gram (2 word sequences) files, and used a computer program to extract and count all instances of the words “*self-esteem*” (1-gram) and “*self esteem*” (2-gram) within the American English corpus.

We added two more pieces of data to control for the possibility that any rise in the use of the word self-esteem is 1) because many such words are being used more frequently over time, or 2) because an increasing number of books are being published each year.

To address the first point, instances of the word “self-control” (1-gram) or “self control” (2-grams) were also collected for each year in the twentieth century. The term “self-control”

was chosen in part because there is no obvious and popularly-used antonym for “self-esteem.” If the absence of esteem is hatred, or perhaps indifference, the term “self-hatred” is not a popularly used one and the term “self-indifference” is not in common usage whatsoever. Self-control can also be seen as the antithesis of unbridled self-esteem; it can essentially put checks on impulses commonly associated with esteeming one’s abilities and accomplishments to an unrealistically high degree. If unrealistically high self-esteem captures more *id*-like aspects of the personality, perhaps self-control can be seen as capturing more *superego*-like aspects of it. The ideal personality would balance its self-related desires with its inhibitions or self-control. Moreover, the combination of high self-esteem and low self-control can be problematic, especially in terms of predicting aggressive behavior (e.g. Baumeister & Boden, 1998).

To address the second point, we sought out data on the total number of books published each year in the US in our time period of interest. Andrew Grabois (formerly of Bowker Books in Print) generously provided statistics on the number of books published in each year between 1900 and 2000, which we used to control for the increase in publications over time.

RESULTS

Examining Overall Temporal Trends

We first calculated an index of the number of books that included each word per 1000 books published that year (see self-esteem example below). We used the same procedure for both self-esteem and self-control:

$$\text{Self-Esteem Index} = \left(\frac{\text{\# books including the word self-esteem}}{\text{total \# books published that year}} \right) * 1000$$

We next examined overall temporal trends in the use of the words *self-esteem* and *self-control* in books from 1900 to 2000. In order to do so we conducted linear regressions with year as the predictor variable and either the *self-esteem index* or *self-control index* as the dependent variable (i.e. in two separate regression models).

The two indices were negatively correlated, $r(100) = -.59$, $p < .001$. Importantly, the use of *self-esteem* was increasing in books over time ($\beta = .81$, $p < .001$, $R^2 = 65.3\%$) and the use of *self-control* was decreasing across the twentieth century ($\beta = -.88$, $p < .001$, $R^2 = 77.1\%$), correcting for the total number of books published. ANOVAs examining the effect of decade on the self-esteem ($F(9,90) = 38.21$, $p < .001$) and self-control indices ($F(9,90) = 48.25$, $p < .001$) confirmed these patterns (See Figure 1).

Another way to examine these data is to create a ratio of the number of books published with the word *self-esteem* relative to the word *self-control*. A ratio score eliminates the need to consider the number of books published per year, because the *relative difference* between the use of one term versus another is most important. Thus, the ratio was calculated as follows:

$$\text{Self-Esteem to Self-Control Ratio} = \frac{\text{\# books including the word self-esteem}}{\text{\# books including the word self-control}}$$

Numbers less than 1 indicate that the word self-control was used more often that year relative to the word self-esteem. Numbers more than 1 indicate that the word self-esteem was used more often that year relative to the word self-control.

We conducted a regression analysis examining the effect of year on the SE:SC ratio. The results indicate that the use of the word self-esteem was increasing relative to the use of the word self-control across the twentieth century, $\beta=.91$, $p<.001$, $R^2=82.3\%$ (See Figure 2). An ANOVA examining the effect of decade on the SE:SC ratio confirmed this pattern, $F(9,90)=305.37$, $p<.001$.

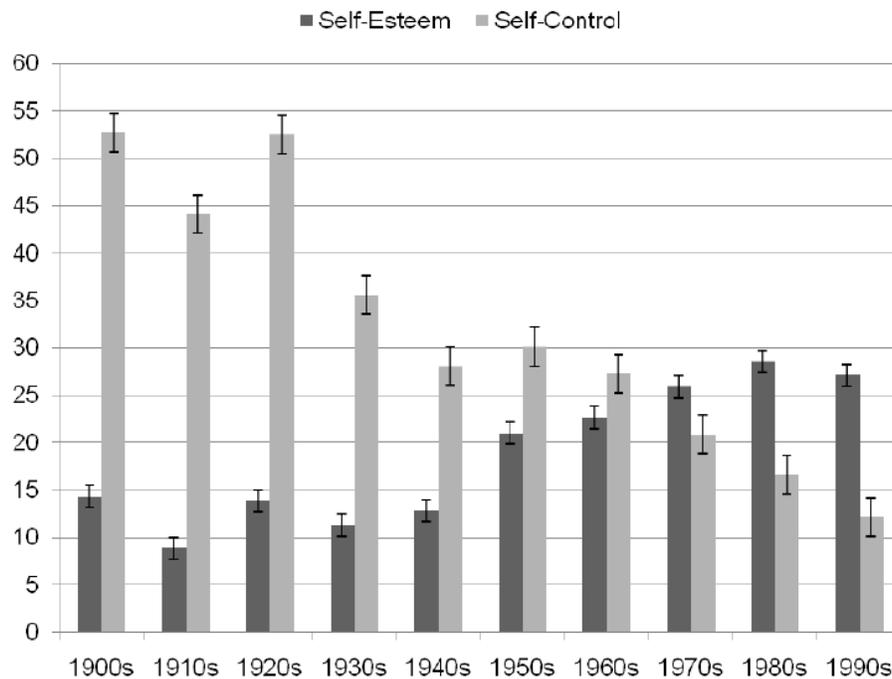


Figure 1. Number of books that include the words *self-esteem* or *self-control* between 1900 and 2000 (per 1000 books published each year).

Evidence for the validity of this analysis comes from a comparison between our findings and results from the prior at-a-distance measure of self-esteem. We found that the number of self-references (1st person singular pronouns) in song lyrics between 1980 to 2000 (as presented in DeWall et al., 2011) is correlated with the number of mentions of self-esteem (relative to self-control) in books between the same years, $r(20)=.60$, $p=.005$. This suggests that the current method may indeed be tapping into sociocultural trends in self-focus over time.

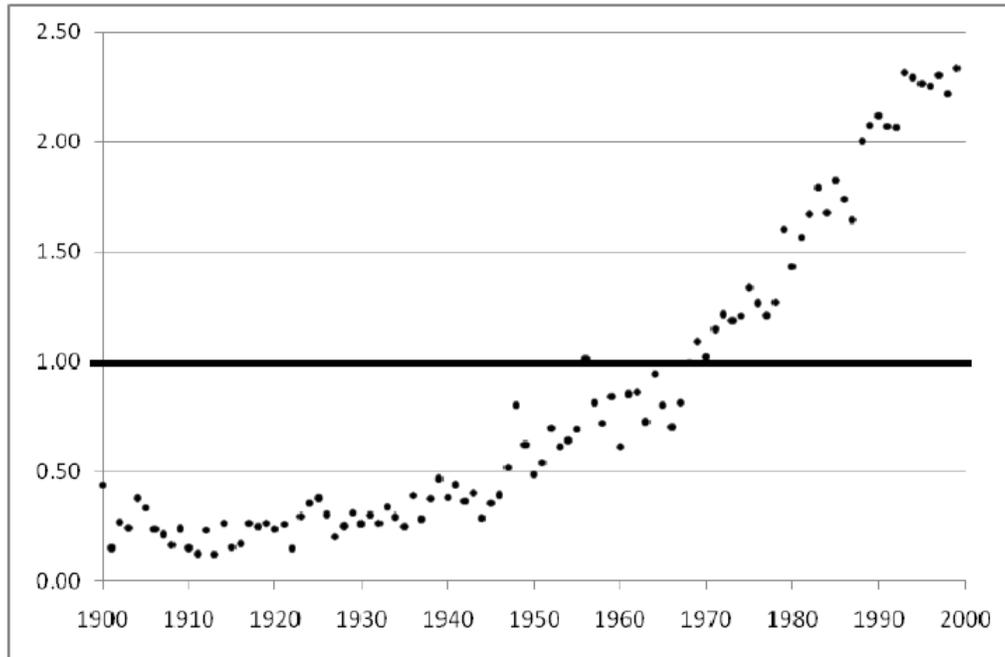


Figure 2. Ratio of number of books that include the word self-esteem to the number of books that include the word self-control between 1900 and 2000 (bolded line indicates equal number of books).

Quantitative Sociohistorical Analysis

In the next section we examine three potential factors that are potentially related to societal-level shifts in self-esteem. Each of these factors are derived from ecological models of human development (e.g. Bronfenbrenner, 1979; 1994; Harrison et al., 2011), which consider factors from the immediate everyday social context of individuals (e.g. family, school), to a mid-level context (e.g. community), to the broader cultural context (e.g. general political and economic environment) of individuals. We examine evidence for these three potential causes of changes in the prevalence of self-esteem word usage over time.

Data Collection Procedures

We used a number of sources to collect the data for these analyses. When possible, data were gleaned from government statistical archives (e.g. US Census Bureau). We also used information from Robert Putnam's book *Bowling Alone* (2001). When possible, data from every year between 1900 to 2000 were included in the analyses, but we followed consistent procedures when specific years of data were not available. More detailed information about the data collection procedures is available in Appendix A.

PART 1: INDIVIDUAL PREDICTORS

In Part 1 we examined the effect of single predictor variables on either self-esteem usage, self-control usage, or unmitigated self-esteem (i.e. the SE:SC ratio). Each individual predictor was entered into a regression model separately to predict each of the three outcomes. That is, for each predictor, there were three separate regression models run.

Family

The higher the rate of divorce and the higher percentage of females in the labor force, the more self-esteem was included in books during the twentieth century. Smaller household sizes were also associated with increased self-esteem usage. As for self-control usage, this was associated with lower divorce rates, a smaller percentage of women in the work force, and larger household sizes. This pattern is reflected in the SE:SC ratio; in other words, an unusually high self-esteem usage (i.e., high SE:SC ratio) was associated with a higher divorce rate, more females working, and smaller family sizes (See Table 2). Note that the relationship between the divorce rate and increasing self-esteem has been found in prior work using trait self-esteem measures (Twenge & Campbell, 2001).

Table 2. The effect of individual predictors on the frequency of self-esteem and self-control usage

	<i>Self-Esteem</i>	<i>Self-Control</i>	<i>SE:SC ratio</i>
<i>Divorce rate</i>	0.82***	-0.80***	0.91***
<i>Household size</i>	-0.82***	0.88***	-0.89***
<i>Female labor force participation</i>	0.83***	-0.83***	0.97***
<i>Student-teacher ratios</i>	-0.88***	0.79***	-0.95***
<i>High school graduation (%)</i>	0.76***	-0.86***	0.76***
<i>Community association membership rates</i>	0.54***	-0.58***	0.39**
<i>Union memberships</i>	0.38***	-0.43***	0.16
<i>Church memberships</i>	0.76***	-0.38**	0.53***
<i>Political affiliation of President (1=Republican, 0=Democrat)</i>	0.10	0.16	0.01
<i>Percentage of House Republican</i>	-0.20*	0.48***	-0.23*
<i>Percentage of Senate Republican</i>	-0.06	0.44***	-0.10
<i>Inflation</i>	0.16	-0.19~	0.13
<i>Unemployment rate</i>	-0.37**	0.09	-0.23*
<i>Annual change in Dow Jones Index</i>	0.09	-0.11	0.14
<i>Personal disposable income (chained)</i>	0.81***	-0.89***	0.98***
<i>Homicide rate</i>	0.28**	-0.42***	0.44***

***p<.001, **p<.01, *p<.05, ~p<.10.

School / Education

We next examined the effect of two education-relevant variables on the word usage outcomes. Smaller student-teacher ratios and higher high school graduation rates might reflect a society that is concerned with individual achievement outcomes. In other words, they might reflect the greater attention and resources being given to each student within the society. Lower student-teacher ratios and higher high school graduation rates were indeed associated with higher self-esteem, including elevated rates of unusually high self-esteem. The opposite pattern was found for self-control usage: it was associated with larger student-teacher ratios and lower graduation rates (See Table 2).

Summary of Level 1 findings

When examining the potential effects of changes in the immediate social context (i.e. Level 1) over time on self-esteem (relative to self-control) word usage, several factors emerge as predictors of word usage. Within the family context, the increased divorce rate, the decline in household size, and the rise of women in the workforce are all related to an increase in the frequency of the word self-esteem (relative to self-control). Within the educational context, smaller class sizes and higher graduation rates are also associated with an increased focus on self-esteem in books across the twentieth century (See Table 2).

Community

The higher the rate of community association memberships, union memberships, and church memberships, the more commonly the word self-esteem appeared in books across the twentieth century. The opposite pattern was found for self-control word usage. In addition, the higher the rate of community association membership and church memberships, the greater the usage of unusually high self-esteem (See Table 2).

Summary of Level 2 findings

Typically media would be an important factor to examine in Level 2, but given the introduction and adoption of several new media across the twentieth century, it was difficult to quantify this factor. Overall, when examining changes in the mid-level context (i.e. Level 2), more community participation and involvement is associated with more self-esteem usage (including unusually high self-esteem) and less self-control usage.

Political Climate

The party affiliation of the President of the United States was unrelated to word usage, however, the percentage of Congress who were Republican in any given year was associated with increased self-control usage (House and Senate), decreased self-esteem usage (House only, but not Senate), and decreased unmitigated self-esteem usage (House only, but not Senate; See Table 2).

Economic Environment

In years with a lower unemployment rate and a higher disposable income, there were increases in both self-esteem word usages and unmitigated self-esteem word usages. In addition, years with lower inflation and lower disposable income had more books with the word self-control in them. The annual change in the Dow Jones Industrial Index was unrelated to word usage, and no other effects emerged at the economic level (See Table 2). Note that the relationship between lower unemployment and increasing self-esteem has been found in prior work using trait self-esteem measures (Twenge & Campbell, 2001).

Crime

The best available historical data for violent crime was the number of homicides per 100,000 people. In years with a higher number of homicides per 100,000 people, there was more self-esteem usage as well as more unmitigated self-esteem usage, and less use of self-control in books (See Table 2). Note that the relationship between the violent crime rate and increasing self-esteem has been found in prior work using trait self-esteem measures (Twenge & Campbell, 2001).

Summary of Level 3 Findings

Overall, when examining changes in the broader cultural or societal context (i.e. Level 3), we find that the Presidents' party affiliation is not related to word usage, but there is some evidence that the percentage of Congress that is Republican is associated with increased self-control usage and decreased self-esteem usage. Word usage is also associated with economic variables such that in general, better economic times are associated with an increased usage of the word self-esteem. Finally, in terms of crime, in years with high homicide rates, there is also a high usage of the word self-esteem relative to self-control.

PART 2: MULTIVARIATE ANALYSES

Multivariate analyses are needed to examine the relative contributions of each indicator when controlling for the contributions of all other indicators. We first created each *Category*

variable by standardizing, negatively weighting (where applicable), and averaging the individual predictors to create five separate categories: Family, Education, Community, Political, Economic, and Crime (See Table 3 for alphas). We then created each *Level* variable using the same process to create the three ecological levels of analysis: Immediate Context (Level 1), Mid-Level Context (Level 2), and Broader Context (Level 3).

We examined multivariate models by Category and by Level. To do so, we conducted three separate regression models each for Category and for Level in order to separately examine the simultaneous effect of all of these potential contributors on self-esteem, self-control, and the SE:SC ratio.

The largest contributions to self-esteem word usage occurred in the Educational Context (see Table 3). The largest contributions to self-control usage, however, occurred in the Family Context. In terms of unmitigated self-esteem (i.e. SE:SC ratio), the strongest effects also occurred in the Family Context. Taken together, the strongest contributors to patterns of self-esteem relative to self-control usage across the twentieth century occurred in the Immediate Social Context (i.e. Level 1). The next largest effects appear to be in the Mid-Level Context (i.e. Level 2), and the smallest effects (although still significant) occur at the Broader Context (i.e. Level 3).

Table 3. Multivariate regressions to determine which category and which level has the largest effect on the frequency of self-esteem and self-control word usage

	<i>Self-Esteem</i>	<i>Self-Control</i>	<i>SE:SC ratio</i>
BY CATEGORY			
Level 1. Family ($\alpha=.98$)	0.29	-0.65**	0.86***
Level 1. School / Education ($\alpha=.92$)	0.56**	-0.21	0.28**
Level 2. Community ($\alpha=.70$)	0.11~	0.04	-0.28***
Level 3. Political climate ($\alpha=.80$)	0.16**	0.22***	0.07**
Level 3. Economic environment ($\alpha=.55$)	0.06	0.05	0.06*
Level 3. Crime	-0.07	0.04	-0.05
BY LEVEL			
Level 1: Immediate Social Context ($\alpha=.83$)	0.97***	-1.23***	1.45***
Level 2: Mid-Level Context ($\alpha=.70$)	-0.18*	0.49***	-0.80***
Level 3: Broader cultural context ($\alpha=.58$)	0.15**	0.20***	0.11***

*** $p < .001$, ** $p < .01$, * $p < .05$, ~ $p < .10$.

DISCUSSION

Although we present a number of interesting findings in this chapter, two main results emerge. First, there is an increased usage of the word self-esteem relative to the word self-control in American books across the twentieth century. This is notable in itself because it replicates and extends prior work finding increased indicators of self-focus over time in Americans and in American cultural products (e.g. DeWall et al., 2011; Gentile et al., 2010;

Twenge & Campbell, 2001; Twenge et al., 2011; Twenge et al., 2008). We should note that usage of “self-control” in books is, of course, also an indicator of self-focus. Although not opposed to “self-esteem” by definition, usages of “self-control” in books suggests an interest (whether positive or negative) in aspects of self-focus that are pitched at a more self-limiting or “superegoic” level of thought and behavior.

We extend prior research on increased indicators of self-focus by examining data from 1900 to 2000, the longest historical time period that has been analyzed thus far. Importantly, for the first six decades in the twentieth century, more books included the word self-control than self-esteem. However, there have been more books with the word self-esteem than self-control since the early 1970s (See Figures 1 and 2). The overall pattern suggests that it was not something specific about the 1970s that necessarily caused these changes (e.g., the energy and economic crises during the decade), but larger social trends that might have passed a critical threshold after 1970 alongside the particular climate of the decade. For one thing, a bundle of new religious and spiritual movements and self-awareness practices that had previously been identified with the “counter-culture” or social margins (e.g., charismatic Christianity, group therapy, Eastern-style mysticism, women’s liberation) moved to the mainstream in the 1970s. The mainstreaming of what had previously been minority activities brought along a depoliticization of what one social critic at the time referred to as “the third great awakening” and a veritable explosion of popular non-fiction literature on psychological aspects of self-focus (e.g. see Killen, 2006, and Zaretsky, 2007). The new literature of and about self-improvement paid more attention (whether positively or negatively) to the possibility of expanding capacities for self-realization through expanded self-esteem rather than expanding self-control, although the latter theme was visited in many titles about “survival” and “surviving” in the period. (For a qualitative survey of the latter literature, see Lasch, 1984).

The second major result of this quantitative sociohistorical analysis points to the family and educational contexts as the most promising potential directions for better understanding why the focus on self-esteem might be increasing in American society over time, although there also seems to be a smaller contribution of wider spheres of influence (See Table 3). What is particularly interesting to consider in light of the historical roots of self-love, is the finding that some *more desirable* variables are associated with increased self-esteem usage while at the same time some *less desirable* variables are also associated with it (See Table 4). For example, smaller student-teacher ratios and high graduation rates are both desirable to parents within educational contexts. Similarly most people would agree that high community participation is important to a functioning society. Finally, low unemployment in combination with high disposable income also predict self-esteem word usage. However, at the same time, more self-esteem word usage occurs in years when there are high divorce rates and high homicide rates. The history of self-esteem, and self-love more generally, is ridden with views of it as a double-edged sword that can be a useful tool but can also be problematic if it goes unchecked. Although this analysis cannot specifically say whether each mention of self-esteem was seen as beneficial or problematic within each book, it does suggest that the concept continues to be complex, and that although some desirable outcomes are associated with increasing self-esteem, there may be social costs to the increasing focus on self-esteem over time.

**Table 4. Summary of predictors of higher self-esteem usage
(relative to self-control usage)**

<i>More desirable for society</i>	<i>Less desirable for society</i>	<i>Neutral; based on individual belief and preference</i>
Small student-teacher ratios	High divorce rates	Small household sizes
High graduation rates	High homicide rates	More union memberships
High community participation		More church memberships
Low unemployment rate		Lower percentage of Congress Republican
High personal disposable income		More female labor force participation

Limitations and Conclusions

As with any research tool there are a number of limitations inherent to the use of n-grams. One obvious one is that researchers cannot really say that the use of a word such as self-esteem in a book is similar to the experience of trait self-esteem within an individual person. N-grams operates with a brush stroke that is as broad as it is imprecise. Another limitation is that just because an author included the word self-esteem in a book does not mean that the book was widely read or otherwise influential. What it may mean is that a publisher believes that a book on certain themes might be of interest to an audience, and when several books converge on certain themes, it may be fair to infer that there is at least some public interest in a topic. Another limitation of n-grams as a research tool is that it is impossible to determine the context of the use of the word self-esteem. Some authors might be writing about how self-esteem will cure all ills, while other writers, like us in this book devoted to self-esteem (which will likely show up on n-grams!), may be more cautious about overstating its role in an ideal society.

There are also limitations inherent to our sociohistorical analysis. First, we limited the analysis to data between 1900 to 2000 in order to be able to correlate changes in word usage with other social indicators. Another obvious limitation to our analysis is that our data are correlational, and thus we cannot be sure of the direction of causality. Perhaps smaller families and class sizes are a reflection, rather than a cause, of a rising focus on self-esteem. Or perhaps these trends co-occur for some other unknown reason. We cannot make strong claims about causality, but simply suggest that the co-occurrence of such trends is notable in itself. Another limitation to our analysis is that it is possible that the relationships between social indicators and self-esteem may operate differently at the societal level relative to the individual (trait) level. For example, at the societal level, higher divorce rates correlate with higher trait self-esteem (Twenge & Campbell, 2001) and self-esteem usage (the current analysis), but within individual children, divorce is linked to *lower* self-esteem (e.g. Amato & Keith, 1991). Conversely, there are sometimes parallels between societal-level and individual-level outcomes. For example, we find that in worse economic times (e.g. high unemployment), the self-esteem usage is lower. Within children, parental unemployment is also associated with low self-esteem (e.g. Ho, Lempers, & Clark-Lempers, 1995). More research is needed to understand why such discrepancies might exist.

Overall, despite the limitations of n-grams generally and of this specific analysis, we were able to use this tool to address other limitations in prior work, and we found surprisingly convergent results. Based on our results, we recommend that future research focus potential intervention efforts at the most immediate sociological level (i.e. Family, School / Education), because that is the level that is hypothesized to have the most impact on quelling the rising tide of unusually high and potentially anti-social self-esteem.

ACKNOWLEDGEMENTS

We thank Emily Falk for retrieving the google n-grams data, and Andrew Grabois for providing annual book production statistics.

REFERENCES

- Amato, P. & Keith, B. (1991). Parental divorce and the well-being of children: A meta-analysis. *Psychological Bulletin*, 110, 26-46.
- Aristotle (2009). *The Nicomachean Ethics*. Edited by Lesley Brown. Translated by W.D. Ross. New York: Oxford University Press.
- Augustine. (1950). *The City of God*. Translated by Marcus Dods. New York: Random House.
- Baumeister, R. F., & Boden, J. M. (1998). Aggression and the self: High self-esteem, low self-control, and ego threat. In R. G. Geen & E. Donnerstein (Eds.), *Human aggression: Theories, research, and implications for social policy* (pp. 111–137). San Diego, CA: Academic Press.
- Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review*, 103, 5-33.
- Bosson, J. K., Lakey, C. E., Campbell, W.K., Zeigler-Hill, V., Jordan, C. H., & Kernis, M. H. (2008). Untangling the links between narcissism and self-esteem: A theoretical and empirical review. *Social and Personality Psychology Compass*, 2, 1415-1439.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge: Harvard University Press.
- Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized: A bio-ecological model. *Psychological Review*, 101, 568-586.
- Crandall, R. (1973). The measurement of self-esteem and related constructs, in Robinson JP. Shaver PR (Eds), *Measures of Social Psychological Attitudes*, Ann Arbor, MI, Institute for Social Research.
- DeWall, C. N. & Pond, R. S., Campbell, W. K., & Twenge, J. M. (2011, in press.) Tuning in to psychological change: linguistic markers of psychological traits and emotions over time in popular U.S. song lyrics, *Psychology of Aesthetics, Creativity, and the Arts*.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542-575.
- Gentile, B., Twenge, J. M., & Campbell, W. K. (2010). Birth Cohort Differences in Self-Esteem, 1988-2008: A Cross-Temporal Meta-Analysis. *Review of General Psychology* 14, 261-268.

- Harrison, K., Bost, K. K., McBride, B. A., Donovan, S. M., Grigsby-Toussaint, D. S., Kim, J., Liechty, J.M., Wiley, A., Teran-Garcia, M., & Costa Jacobsohn, G. (2011). Toward a developmental conceptualization of contributors to overweight and obesity in childhood: The Six-C's model. *Child Development Perspectives*, 5, 50-58.
- Heatherton, T. & Vohs, K. (2000). Interpersonal evaluations following threats to self: Role of self-esteem. *Journal of Personality and Social Psychology*, 78, 725-736.
- Ho, C., Lempers, J. & Clark-Lempers, D. (1995). Effects of economic hardship on adolescent self-esteem: A family mediation model. *Adolescence*, 30, 117-131.
- Killen, A. (2006). *1973 Nervous Breakdown*. New York: Bloomsbury.
- Konrath, S., O'Brien, E., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review*, 15, 180-198.
- Lasch, C. (1984). *The Minimal Self: Psychic Survival in Troubled Times*. New York: Norton.
- McFarlin, D.B., Baumeister, R.F., & Blascovich, J. (1984). On knowing when to quit: Task failure, self-esteem, advice, and nonproductive persistence. *Journal of Personality*, 52, 138-155.
- Michel, J., Shen, Y. K., Aiden, A. P., Veres, A., Gray, M. K., the Google Books Team, Pickett, J. P., Hoiberg, D., Clancy, D., Norvig, P., Orwant, J., Pinker, S., Nowak, M. A., Aiden, E. L. (2011) Quantitative Analysis of Culture Using Millions of Digitized Books. *Science*, 331, 176-182.
- Morling, B., & Lamoreaux, M. (2008). Measuring culture outside the head: A meta-analysis of individualism-collectivism in cultural products. *Personality and Social Psychology Review*, 12, 199-221.
- Nisbett, R.E. and Wilson, T.D. (1977) Telling more than we can know: verbal reports on mental processes, *Psychological Review*, 84, 231-259.
- Pickering, E. (2008). Unidentified First Use of Self-Esteem: Milton's An Apology for Smectymnuus (1642). *Notes & Queries*, 55, 287-289.
- Putnam, R. (2001). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
- Tennen, H., & Herzberger, S. (1987). Depression, self-esteem, and the absence of self-protective attributional biases. *Journal of Personality and Social Psychology*, 52, 72-80.
- Theissen, G. & Merz, A. (1998). *The historical Jesus: a comprehensive guide*. Augsburg Fortress Publishers.
- Trzesniewski, K.H., Donnellan, M.B., & Robins, R.W. (2008). Is "Generation Me" really more narcissistic than previous generations? *Journal of Personality*, 76, 902-918.
- Twenge, J. M., & Campbell, W. K. (2001). Age and birth cohort differences in self-esteem: A cross-temporal meta-analysis. *Personality and Social Psychology Review*, 5, 324-344.
- Twenge, J. M., Campbell, W. K., & Gentile, B. (2011, in press). Generational increases in agentic self-evaluations among American college students, 1966-2009. *Self and Identity*.
- Twenge, J. M., & Foster, J. D. (2010). Birth cohort increases in narcissistic personality traits among American college students, 1982-2009. *Social Psychological and Personality Science*, 1, 99-106.
- Twenge, J. M., Konrath, S., Foster, J. D., Campbell, W.K., & Bushman, B. (2008). Egos inflating over time: A cross-temporal meta-analysis of the narcissistic personality inventory. *Journal of Personality*, 76, 875-902.

Wilde, O. *Oscar Wilde: The Major Works*. (1895 / 2009). New York: Oxford University Press.

Zaretsky, N. (2007). *No Direction Home: The American Family and the Fear of National Decline, 1968-1980*. Chapel Hill: University of North Carolina Press.

APPENDIX A. DETAILED DATA COLLECTION PROCEDURES

<i>Indicator</i>	<i>Years available and data notes</i>	<i>Source</i>
Divorce rate	1900-2000. The annual divorce rate per 1000 people each year. Up to 1960, the divorce rate was only available the first year of the decade (i.e. 1900, 1910, 1920, 1930, 1940, and 1950). In those cases it was treated as numerically identical throughout the decade for analyses. For 1960 through 1980, data were only available each 5 year period, and the same procedure was followed. Annual statistics were available from 1980 onward.	Census Bureau and Center for Disease Control & Prevention.
Household size	1900-2000. Annual statistics were available from 1947 onward. From 1910 to 1946, household size statistics were only reported at the beginning of the decade (i.e. 1900, 1910, 1920, 1930, 1940). In these cases, household size was treated as numerically identical throughout the decade.	Census Bureau
Female labor force participation	1900-2000. In the event of missing years, we used the same procedures as described above.	Census Bureau
Student-teacher ratios	1910-2000. The first data point was 1910, after which, semi-annual statistics were available from 1918-1970, then in 5-year increments until 1984, and then each year until 2000. See above for missing data procedures.	Census Bureau
High school graduation rates	1900-2000. Data were available annually from 1900-1940, and from 1950-2000. Biannual data were available in the 1940s, during which we treated each interim year as identical as the prior year for statistical analyses.	Census Bureau
Community association memberships	1900-1995. A summary of participation per 100 eligible people in 32 national chapter-based associations. Data were available for each year in this time period.	Putnam, 2001, p. 54
Union memberships	1900-1997. Percentage of non-agricultural labor force in unions. Data were available for each year in this time period.	Putnam, 2001, p. 81
Church memberships	1935-1995. Church members per 100 in the population, obtained from church records to avoid self-report bias. Missing values in 1936, 1938, 1942-43, 1950-51, and 1954 were replaced with the most recent available year.	Putnam, 2001, p. 70
Party affiliation of President	1900-2000. Available for all years. Coded as 1 if Republican for majority of year, and as 0 if Democrat.	Whitehouse
Percentage of House Republican	1900-2000. Data available for all years.	Census Bureau
Percentage of Senate Republican	1900-2000. Data available for all years.	Census Bureau
Inflation	1914-2000. Data available for all years.	Bureau of Labor Statistics

<i>Indicator</i>	<i>Years available and data notes</i>	<i>Source</i>
Unemployment	1920-2000. The first year of available data was 1920, then 1930. After this data were available biannually until 1986. From 1987 onward data were available annually. In the event of missing years, we used the same procedures as described above (e.g. Divorce rate).	Bureau of Labor Statistics
Dow Jones Industrial Index	1900-2000. Percentage change in the Dow Jones Industrial Index since the prior year was calculated for each year. Data available for all years.	www.nyse.tv
Disposable income	1929-2000. Personal disposable income in chained 1996 dollars. Data available for all years.	Bureau of Economic Analysis
Homicides	1900-2000. Homicides per 100,000 people. Data available for all years.	Census Bureau