The General Social Survey

GSS

"If you want to measure change don't change the measure": The Origin of a Quote

GSS Topical Report #46
November 2026

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PREFACE

Tom W. Smith, a long-time Principal Investigator of the General Social Survey (GSS), prepared this report as a historical investigation into the origins of the widely cited expression, "If you want to measure change don't change the measure." The report documents the development, attribution, and diffusion of a phrase that has become closely associated with longitudinal and trend research.

The replication principle described in this report has played an important role in the history of the GSS and in the broader survey research community. At the same time, the practice of maintaining high-quality trend measurement has always required balancing continuity with adaptation. Over more than five decades, the GSS has evolved in response to changing social, technological, and operational conditions. Innovations in sampling, questionnaire design, mode of administration, and data collection have been introduced when necessary to preserve data quality and sustain the survey's scientific mission.

We present this report as a historical contribution that illuminates one of the foundational ideas underlying the study of social change. While some survey practices have evolved substantially since the early years of the GSS, understanding the origins and influence of the replication principle provides important context for both the history of the GSS and the continuing challenges of measuring change over time.

INTRODUCTION

"If you want to measure change don't change the measure," is a widely quoted expression of the replication principle especially as applied to surveys, educational testing, and other social science measurements. As Table 1 shows, the quote has been described in many different ways. There are 18 core terms used and numerous modifiers. In these 28 examples, "principle" appears four times, "adage" three times, and "aphorism," "dictum," "observation," "mantra," "maxim," and "words" each twice. The quote is described as well-established with the modifier "old" used four times, and "classic" "famous," and "well-known" each twice, and "oft-quoted and still-quoted" once. Of course, many of the core words also convey similar connotations to those expressed by the modifiers. For example, "adage" implies age, a "maxim" is a saying that everyone knows, "axiom" is an established, accepted, or self-evident truth, and a "dictum" is from an authoritative source.

A debate has emerged over where and when the quote developed and who was its originator. In the following discussion, "If you want to measure change don't change the measure" is referred to as the standard quote or predominant version since related quotes will also be discussed.

SEARCH FOR ITS ORIGIN

Social Science, Sociological Track

Several authors report the quote as attributed or credited to the sociologist Otis Dudley Duncan without definitively asserting him as its originator (Freese and Peterson, 2017; IOE, n.d.; Lockheed, 2008). Claude Fischer (2011, p. 22) wrote "according to the eminent sociologist Michael Hout…" "(t)he eminent sociologist Otis Dudley Duncan once said…" the standard quote. Others directly acknowledge Duncan as the standard quote's originator, but provide no other information (e.g. National Assessment, 2020). Still others named Duncan as having coined the phrase in 1969, but without any further particulars (e.g. Lockheed, 2008; Nørholm, 2024). Finally, several report not only a date, but also an original source "Duncan, O. D. (1969a). Indicators of social change. New York: Russell Sage Foundation" (Ajang, 2020-21, section 1.5; Hout, 2007, p. 111, 117; Olafsson, Livingstone, and Haddon, 2013, FAQ 8, para. 4). The problem with this reference is it does not appear to exist. In "A Comprehensive Bibliography" of Duncan's publications there is no such citation (Goodman et al., 2004). Additionally, the Russell Sage Foundation indicates it does not have such a publication (Email from Suzanne Nichols at Russell Sage Foundation to Tom W. Smith, July 1, 2024).

Online searches also failed to locate such a publication. However, these searches did suggest two publications that might have been an actual source of a 1969 Duncan quote: 1) Otis Dudley Duncan, "Social Stratification and Mobility: Problems in the Measurement of Trends," in Indicators of Social Change, edited by Eleanor Bernert Sheldon and Wilbert E. Moore, New York: Russell Sage Foundation, 1968 and 2) Otis Dudley Duncan, Toward Social Reporting: Next Steps. New York: Russell Sage Foundation, 1969b. Both were published by the Russell Sage Foundation. The first has "Indicators of Social Change" in the book title, but not in Duncan's contribution, and is a year earlier (1968). The second has a completely different title, but was published in 1969. Neither has the standard quote or any close approximation to it, but both make the similar points using very different words. For example, (Duncan, 1968) states "3. It must be established that the data for periods of time are sufficiently comparable, so that intertemporal differences can be taken to signify change rather than mere fluctuation in errors of measurement or variation in study design" (p. 696) and "So little effort has gone into calibration and standardization of technique that we cannot be sure what the marginal return to a *serious* effort to achieve

comparability would be" (p. 714-15). Likewise, Duncan (1969b) includes such statements as "Obviously, a minimum requirement for measuring change is that the same variable be measured at two distinct points in time" (p. 10), "the same question should be put to respondents in the same way and the same context on both occasions of measurement (p. 10)," and "it is appropriate to put at the top of the list the suggestion that a replication is probably not worth doing unless one has serious intention to replicate" (p. 27).

With these efforts not finding the standard quote in these closest Duncan's publications to the proffered, but phantom, 1969 citation, a search was made of several Duncan publications from the 1970s and 1980s that dealt with trends, social change, and social indicators (Duncan, 1974; 1975; 1984; Duncan, Schuman, and Duncan, 1973). None contained the quote. Next, a search was made of several databases of scholarly work such as JSTOR and Google Scholar and on the internet in general and no publication by Duncan using the standard quote was located.

Finally, early proposals for NORC's General Social Survey (GSS) were searched for the standard quote. The preliminary draft for the first proposal (p. 2) in July 1971 cited Duncan (1969b) as follows:

> The iron law of methodology is succinctly put by Duncan (1969[b], p. 10):… a minimum requirement for measuring change is that the same variable be measured at two distinct points in time … If it is an interview question, for example, then the same question should be put to the respondent in the same way and in the same context on both occasions of measurement.

The final version of the proposal in August, 1971 further called for "standardization of measures so that different samplings are comparable" (p. 3). A related proposal in October, 1971 elaborated on this noting "the survey should be standardized. The same carefully-worded questions should be repeated each year so that changes may be assessed" (p.1). In an April, 1972 proposal, this point is reiterated as "Standardized measures – items worded identically in repeated surveys – are especially valuable, since they enable us to study time trends…" (p. 1). Then, a February, 1974 proposal (p. 3) noted

> Second, the project is much influenced by the baseline replication approach in the social indicators movement (see Otis D. Duncan, Toward Social Reporting: Next steps, New York: Russell Sage Foundation, 1969). The idea is a simple and powerful one: since we would have to wait years to see results from research generating new items, the best way to study social change is to repeat previous measures as exactly as possible in current studies, and to compare the old and new data to detect trends.

Later GSS proposals often repeated the replication principle such as the following in 1986:

> It is an interesting paradox that the way to study change is to replicate rather than innovate. By keeping the stimuli constant to build time series by the strict replication of items and the continual repetition of technical aspects of the data collection (e.g. sampling, coding, cleaning, etc.)…. Replication remains a central feature of the [GSS] design (p. 75-76).

These excerpts from GSS proposals demonstrate three things 1) the GSS's dedication to the replication principle, 2) the recognition of Duncan's work[1] related to that principle, and 3) neither the standard quote nor any close approximation to it was used.[2] Combined with the failure of the other searches to find any use of the standard

[1] The GSS team was not only familiar with Duncan's publications, but also benefited from having him serve on the GSS Board of Advisors in 1973-1976.

[2] Relatedly, Pescosolido (2013 p. 14) in footnote 8 indicated that the standard quote was "Attributed to James Davis, GSS founder, quoted by Peter Marsden at the 2012 annual Schuessler Lecture at Indiana University." She attended the lecture, but Marsden's lecture slides "don't include any attribution about the origin of the statement and he indicates that he doesn't "recall making any explicit attribution about the statement's originator (Email from Peter Marsden to Tom W. Smith, March 8, 2026)."

quote by Duncan, the summary conclusion is that while Duncan repeatedly expressed support for the replication principle, there is no documented evidence that he was the originator of the standard quote expressing that principle.

However, this does not rule out the possibility of an oral tradition. While Hout now acknowledges that he has not located any written record of Duncan using the standard quote, he reports that he "heard Duncan say" it (Email from Hout to Smith, October 19, 2024). Similarly, Peter Marsden noted "If you had posed an open-ended question about who is responsible for the statement, I would have said that it was Duncan—the lore that came down to me is that he established it as a principle for the project while he was on the Board of Advisors... (Email from Peter Marsden to Tom W. Smith, March 8, 2026)." Marsden and Hout who were both long-time members of the GSS team with Marsden as chair of the GSS Board of Overseers in 1993-1997 and co-principal investigator in 1997-2015 and Hout chair of the Board of Overseers in 1997-2001 and co-principal investigator of GSS in 2009-2016. They both favor the idea of the standard quote coming to the GSS from Duncan. Smith who has been with the GSS since 1974 has documented that the GSS's adoption of the replication principle comes largely from Duncan's writings reinforced by his role on the GSS Board of Advisors. But Smith is doubtful that the standard quote itself was first created by Duncan and survived in oral tradition until first appearing in print in the educational track in the 1990s.

Additionally, while Duncan was a strong and long-term supporter of the replication principle endorsed by the standard quote, he was not the first social scientist or survey researcher to support that position. Smith (2025) in his biography of Harry H. Field wrote:

> Field followed the dictum that "The way to measure change is not to change the measure," noting that "trend questions have to remain the same ("Radio Program," February 28, 1945)," He added that if there was an event or development that might have affected attitudes one would follow up the repeated trend question with new questions related to the occurrence.

Field also noted that "Whenever you change the wording of a question, you are really polling opinion on something slightly different." Moreover, there is ample reason to believe that George Gallup and other founders of modern public opinion research in the 1930s also believed in the replication principle.

The Educational Measurement Track

The second track is in the field of educational measurement, especially regarding assessments of educational achievement in student populations. The educational track generally cites Albert E. Beaton as the originator of the quote in Beaton and Zwick (1990). He explicitly took credit in 2017 when he wrote:

> The 1986 assessment produced unacceptable results, which have been referred to as the reading anomaly. The average score for 12th grade students fell by an estimated 2 years of growth, which could not have happened in the 2 years since the last assessment. The eighth grade students showed no decline, and the fourth graders showed a slight decline. This reading anomaly brought about a detailed exploration of possible explanations. Although a single factor was not isolated, it was concluded that many small changes produced the results. The results were published in a book by Beaton and Zwick (1990), who introduced the maxim "If you want to measure change, don't change the measure" (Beaton and Barone, 2017, p. 252).

The one problem with this statement is the quote does not appear in Beaton and Zwick (1990). But there is a similar quote that appears at three places in their report (emboldening added below):

> One overall lesson stands out: **When measuring change, do not change the measure**. Precise implementation of this dictum is, of course, impossible in actual practice. In fact, NAEP has

> modified its measurement instruments by rearranging and reformatting assessment exercises since it began measuring trends (Beaton and Zwick, 1990, p. 10).
>
> The study of the 1988 bridges shows that the effect of changing measurement instruments can be so large that it obscures real changes in educational performance. This leads us to repeat the major lesson from the reading anomaly that was stated in Chapter 1: **When measuring change, do not change the measure** (Beaton and Zwick, 1990, p. 165).[3]

In addition, in a foreword, John W. Tukey repeats the quote (citing p. 165) and then builds on it with, "e) THE BEST WAY TO MEASURE CHANGE IS rarely TO MEASURE TWO LEVELS AS BEST WE CAN SEPARATELY, AND THEN SUBTRACT ONE NUMBER FROM THE OTHER (Beaton and Zwick, 1990, p. ix)."

While this version appears in a joint publication of Beaton and Zwick (1990), Beaton is generally recognized as its originator. Beaton and Zwick (1992) cite Beaton (1990) as the author of the publication's introduction where this version first appeared and Zwick (1992) cites Beaton in the same way. Many later citations of this version also mention Beaton alone as the originator.

The exact 1990 Beaton version has itself been repeated numerous time since 1990 usually with specific citation of Beaton and Zwick (1990). For example, both Beaton and Zwick (1992; Zwick, 1992) cite the 1990 quote. Other examples are Ingles, 2004, p. 21; Marion, 2019, in last line; National Academies, 2017, p. 219; National Academies, 2022, p. 3-1). Alternatively, many like Beaton himself (Beaton and Barone, 2017) instead cite Beaton as the originator of the standard quote (e.g. Bohrnstedt, 1997; Camilli and Weiner, 2010; DePascale, 2021; Musick, 2001; National Assessment, 2002; Wainer, 2010).

Beaton's 1990 quote ("When measuring change, do not change the measure.") may have transformed into what has become the dominant version ("If you want to measure change, don't change the measure"). By 2017 Beaton thought that the latter was what he had written in 1990. An early variant in the educational measurement track was "A general dictum in testing is that if you want to measure change then you should not change the measure (Wolf, 1993, p. 44)." Wolf's article does not cite a source for this statement. Nor does it cite any of Beaton's work in the article. It does cite work that mentions the reading anomaly, but the sources cited do not include any version of the standard or Beaton quote. Wolf's description of the quote as a "general dictum" suggests that he had not just coined the quote, but does not rule out that possibility. It might be a variant of the Beaton quote which does relate to the topic of the article. But it is clearly closer to the predominant version than to Beaton's original version and could have drawn on an unknown earlier appearance of either the standard quote or a close variant to it.

Another early example of a very small change occurs when Hedges and Venezky (1996[4], p. 182) in their first recommendation wrote "'When measuring change, don't change the measure,' as stated by Al Beaton in the first report on the 1986 reading anomaly." That switch of "do not" to "don't" nudges it towards the standard quote.

The earliest exact version of the predominant quote so-far located appears in Bohrnstedt (1997, p. 22) which states, "Al Beaton (TIMSS Director) is credited with saying: 'If you want to measure change don't change the measure'." Since it does not cite a source and only "credited" Beaton with the quote, it is possible that Bohrnstedt did not have Beaton's actual quote in hand and wrote what he recalled it to be. Another early appearance of the predominant version was also in the educational measurement track but does not explicitly mention Beaton (Pellegrino, Jones, and Mitchell, 1999, p. 77):

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[3] We know that the quote was written before December 13, 1989 since that was the date of Tukey's foreword. It is possible that it might date back to 1988 as Lockheed (2008) implies since basic research on the reading anomaly was done in 1986-88.

[4] While the volume was published in 1996 it appears that the Hedges and Venezky contribution was originally completed in 1995.

> "The anomalies in the reading results for 1986 and 1994 NAEP (Zwick, 1991; Hedges and Venezky, 1997 (*sic* 1996)) demonstrated that very modest changes in data collection and assessment procedures can have unexpectedly large effects on assessment results. Analyses of the 1986 incident, including a set of randomized experiments built into the subsequent (1988) assessment, led measurement specialists to conclude that if you want to measure change, don't change the measure."

While the Zwick (1991) and Hedges and Venezky (1997) references are not linked directly to the subsequent quote, it is noteworthy that while Zwick (1991) has no version of the standard quote, Hedges and Venezky has the original Beaton version, not the predominant quote that Pellegrino, Jones, and Mitchell include.

Thus, while there are connections between the early uses of the standard quote and the original Beaton version that supports the idea that it was a modification, perhaps inadvertent, of the Beaton version, that conclusion is possible, but not proven.

Another Version

While not part of a track leading to the standard quote, another related quote "the way to measure change is not to change the measure" was developed by Tom W. Smith. Its first documented use was in September, 1988 (Smith, 1988) 5, but Smith recalls it as having been created earlier in the 1980s perhaps in Smith (1987) or Smith (1985), but the texts of those presentations have not been found. He also recalls it as being based on presentations of the replication principle in GSS proposals and various writings of Duncan (Smith, 1981), but expressing the idea in a new way. This version has not been widely used. For example, a Google Scholars search finds 12 uses with six by Smith himself and six by others all which cite a Smith reference as its source. But it was picked up by the International Social Survey Program which the GSS co-founded in 1984. As Mangahas (2012) noted, "The frequency of an existing statistical indicator, and the manner of measuring it, must be strictly maintained. 'The way to measure change is not to change the measure,' goes a mantra of the International Social Survey Program."

Smith has used his version in 11 documented instances (Cimons, 2011; Gibson, 2013; Smith, 1988; 1994; 1996; 2002; 2005, 2008; 2011; 2013; 2024) and numerous undocumented talks. But in one case (Smith, 1993, p. 388), he used a variant, "In order to measure change, don't change the measure." This illustrates how unintentional or accidental variations can be introduced. This process did not change the Smith version, but as noted above, such modifications may have altered the original Beaton version into the predominant version.

The Smith version is sometimes mixed up with the predominant version. Cowan, Hout, and Perrett (2024) cite the Smith quote and an article of his in which it appears (Smith, 2005), but then in a footnote state "1. This statement is usually attributed to Otis Dudley Duncan. James A. Davis said it often, as does Tom Smith." This confuses the predominant version with the Smith version. Similarly, Marsden and Smith (2011, p. 12) includes the standard quote, but cites Smith (2005) as the source and only the Smith version appears there.

Also, sometimes variations can be introduced when an original statement is paraphrased. For example, Walte (2018, p. 40) wrote "The evaluation of attitude change by Smith (2005) reminds us that we need to consider how change is measured. According to Smith's first law, we can only measure change if measures are not changed over time." Smith's First Law is "the way to measure change is not to change the measure." But someone reading Walte's statement might have instead assumed it was what she wrote.

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[5] While Smith's quote pre-dates the publication of the Beaton quote in the educational measurement field, there is no reason to believe it was known to him or others in that area. It is interesting that Tukey's extension of Beaton's quote includes the phrase "way to measure change" that is part of Smith's quote.

The GSS team's dedication to the replication principle as expressed by the standard quote is illustrated by a wonderful presentation of "A Fictional GSS PI Ritual" in Marsden (2012). Slides 3 and 4 contained the standard quote repeated in increasingly larger font and with an exclamation point added. Marsden recalled that these slides were designed "to stress the point that the GSS has ordinarily been firmly committed to the "don't change" practice (email from Peter Marsden to Tom W. Smith, March 8, 2026)." He then "described an imaginary pre-Board meeting séance-like event in which the PIs would begin by joining hands and whispering the statement like a mantra, gradually increasing its volume while working themselves up into a frenzy before heading into the Board meeting itself. (Please do note that slide 3 declares that this to be a fictional ritual.)."

SUMMARY

The origin of "If you want to measure change don't change the measure" remains clouded. Duncan was a major proponent of the replication principle, but no written use on the standard quote has been linked to him. However, the oral-tradition hypothesis cannot be ruled out. But how that led to its adoption in the educational measurement track is unclear and doubtful. The origin of Beaton's version is well documented and it is possible that his version mutated into the standard quote in 1990s, but that's uncertain.

TABLE 1: TERMS USED TO DESCRIBE THE STANDARD QUOTE

"If you want to measure change don't change the measure"

Adage	Nellhaus, Behuniak, and Stancavage, 2009, p. 1; "TIMSS," 2016, p. 1
Aphorism	Dadey, 2015, p. 102
Axiom	Mullis et al., 2003, p. i
Classic maxim	Domingue at al., 2022, p. 9
Dictum	Freese and Peterson, 2017, p. 148
Famous aphorism	"Derek Briggs," 2014, item #10
Famous statements	Hedges in Sharma, 2018, para. 22
General dictum	Wolf, 1993, p. 44[6]
Observation	Lockheed, 2008, p. 4
Oft-quoted and still-quoted observation	DePascale, 2021, para. 4
Old adage	Dantic, 2013, p. 93
Old mantra	Walsh, 2018, p. 1
Old saw	Wainer, 2010, p. 16
Old saying	Vogt et al., 2014, p. 26
Maxim	Beaton and Barone, 2017, p. 252
Premise	Sinandawa, 2021, p. 40
Principle	Olafsson, Livingston, and Haddon, 2014, p. 27
Principle as a slogan	Nørholm, 2024, para. 9 [translated from Swedish]
Principle in simple terms	Ajang, 2020/201, Section 1.5
Simple principle	Hout, 2007, p. 11
Social science creed	Bridges, 2022, para. 4
Standard mantra	Pescosolido, 2013, p. 14
Truism	Ludlow et al., 2011, p. 10
Well-known phrase	Tymms, 2004, p. 478; Williamson, 2008, p. 3
Words	Salganik, 2018, p. 33; Fischer, 2011, p. 22

[6] This used a close variant of the standard quote.

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