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The 100 Most Eminent Psychologists of the Twentieth Century

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Abstract

A rank-ordered list was constructed that reports the first 99 of the 100 most eminent psychologists of the twentieth century. Eminence was measured by scores on three quantitative variables and three qualitative variables. The quantitative variables were journal citation frequency, introductory psychology textbook citation frequency, and survey response frequency. The qualitative variables were National Academy of Science (NAS) membership, American Psychological Association (APA) President and/or recipient of the APA Distinguished Scientific Contributions Award, and surname used as an eponym. The qualitative variables were quantified and combined with the other three quantitative variables to produce a composite score that was then used to construct a rank-ordered list of the most eminent psychologists of the twentieth century.

The 100 Most-Eminent Psychologists of the Twentieth Century

The discipline of psychology underwent a remarkable transformation during the twentieth century, a transformation that included a shift away from the European-influenced philosophical psychology of the late nineteenth century to the empirical, research-based, American-dominated psychology of today (Simonton, 1992). On the eve of the twenty-first century, the APA Monitor (December, 1999) published brief biographical sketches of some of the more eminent contributors to that transformation. Milestones such as a new year, new decade, or in this case a new century seem inevitably to prompt such retrospective appraisals of the most notable events or people of an era. Without question, the psychologists mentioned in the APA Monitor retrospective qualify as eminent. Nevertheless, they represent a very small subset of the substantial number of twentieth century psychologists who might be so regarded. Moreover, such retrospectives tend to omit highly eminent, and still very productive, contemporary psychologists.

The purpose of the present study was to produce a more inclusive, rank-ordered list of the 100 most-eminent psychologists of the twentieth century. To produce any such list is a daunting task, one fraught with a variety of difficulties, not the least of which is to operationalize “eminence.” Moreover, any procedure for creating such a list will invite methodological criticism. Because these difficulties will not likely be addressed to everyone’s satisfaction, and because our list is certain to have omitted the names of many great psychologists for whom one could make a compelling case for inclusion, we took a cue from Eugene Garfield (1977) and have reported only 99 names. Hence, the reader’s best case for a psychologist who should have made the list just might be that last, 100th name that we have not reported.

We think the most-eminent list reported here will be inherently interesting to many psychologists. Beyond that, knowing who is eminent in a discipline can serve a number of useful purposes. James McKeen Cattell recognized nearly a century ago that the understanding of both science and creativity would be advanced by the study of who is eminent in science and why (e.g., J.M. Cattell, 1910). Exploring the contribution of psychological variables to scientific behavior, especially exemplary and eminent cases, is now the province of the psychology of science, an emerging companion discipline to the more familiar and well-established disciplines that study science such as history of science and philosophy of science (see Feist & Gorman, 1998, for a detailed overview of the psychology of science). For example, Simonton (1992), working from a list of 69 eminent American psychologists, created a profile of the “typical” eminent American psychologist. Simonton (2000) investigated the contribution of 54 eminent psychologists’ methodological and theoretical orientations to the durability of their influence. It is our hope that the most-eminent list reported here will be a useful starting point for similar studies in the psychology of science. Our most-eminent list also has potential uses for research in the history of psychology and in the psychology classroom. Some of those applications are discussed at the end of this article.

Our procedures, and the resulting most-eminent list, differ from those of other studies of eminence in psychology in a some important respects. Foremost among those differences is the fact that no other study has attempted to compile a rank-ordered list of the most-eminent psychologists that spans the entire twentieth century. Another important difference is that most eminence studies have employed a single measure of eminence. Eminence, however, is a complex, multidimensional concept not likely to be well reflected in any one measure. Therefore, the present study employed a combination of three

quantitative and three qualitative variables.

The use of multiple criteria to measure eminence should accomplish the equivalent of what statistician/magician Persi Diaconis (1978) called the “bundle of sticks” phenomenon in magic. A magician may perform several variations on the same trick, each having, like a single stick, a weak point. The entire performance, however, like a bundle of sticks, is much stronger than the individual tricks it comprises. To adapt an aphorism from psychology, the whole is stronger than the parts. The use of multiple criteria yields a better measure of eminence to the extent that the strength of the “bundle” of measures compensates for the weaknesses of its components.

The variables that have been used to measure eminence in psychology include frequency of citation in the professional journal literature (e.g., Endler, Rushton, & Roediger, 1978; Garfield, 1978, 1992; Myers, 1970), frequency of citation in introduction to psychology textbooks (e.g., Gorenflo & McConnell, 1991; Kaess & Bousfield, 1954; Knapp, 1985; Perlman, 1980; Roeckelein, 1995), and surveys of professional opinion (e.g., Annin, Boring, & Watson, 1968; Coan & Zagona, 1962; Korn, Davis, & Davis, 1991). These measures yield quantitative or ordinal level data that have been used to construct rank-ordered lists.

Studies of eminence in psychology have also employed qualitative measures such as whether a psychologist’s surname has come to be used as an eponym (i.e, a psychological term, e.g., Pavlovian conditioning, Skinner box) to represent a theory, procedure, test, apparatus, etc. (Roeckelein, 1972, 1996)¹, and the receipt of awards or other forms of honorary recognition such as election to membership in the National Academy of Sciences (NAS), receipt of the American Psychological Association (APA) Distinguished Scientific Contributions Award, or election to the APA presidency

(e.g., Over, 1981; Simonton, 1992).

The present study employed all six of the quantitative and qualitative variables mentioned above. Our operational definition of eminence was a composite score on those variables. What follows is a description of how each variable was measured, and how those scores were combined to yield a composite index that was then used to construct a rank-ordered list of the 100 most eminent psychologists of the twentieth century. We then describe some characteristics of our list and how it relates to other measures of eminence in psychology.

The terms “psychologist” and “twentieth century” also require definition. For present purposes, “psychologist” was not defined by academic degree (e.g., the Ph.D. in psychology, Psy.D., or comparable degree). Rather, “psychologist” was defined in terms of an individual’s contributions to the discipline of psychology, as indicated by his or her score on the various measures of eminence we employed. This approach permits consideration of individuals who, without question (e.g., Freud, Pavlov), have made very significant contributions to psychology, but who might be excluded from consideration if an academic degree criterion were employed. By “twentieth century psychologist” we simply meant that at least one of the individual’s published contributions to psychology occurred in the twentieth century.

Journal Citation Frequency

We constructed a list of the 100 psychologists most frequently cited in the professional psychological journal literature, the journal citation list (JCL). The JCL was constructed by adding citation frequencies across four previously published lists. The lists we used, the time periods they covered, and the number of names reported were published by Myers (1970), 1962 to 1967, 62

names; Endler et al. (1978), 1975, 100 names; Garfield (1978), 1969 to 1977, 100 names; and Garfield (1992), 1986 to 1990, 50 names. The JCL samples four (mostly) non-overlapping time periods and combines lists produced by different methodologies. The methodologies included manual searches (Endler et al., 1978; Myers, 1970); computerized database searches (Garfield, 1978; 1992); searches of selected journals deemed "prestigious" (Myers, 1979); searches of all Social Science Citation Index (SSCI)-indexed psychology journals (Endler et al., 1978, Garfield, 1978); and a search of SSCI-indexed psychology journals that included only those authors who had published at least 10 articles in SSCI-indexed journals during the period covered by the search (Garfield, 1992). The Garfield (1992) list gives considerable weight to currently active, contemporary psychologists, whereas the other three lists give more weight to historically older psychologists without necessarily excluding more contemporary psychologists. It is our view that the JCL represents a reasonable approach to achieving some balance between an emphasis on historically established authorities and contemporarily active psychologists. Moreover, the JCL sampled four somewhat disparate time periods and thus presents a more comprehensive picture of journal citation frequencies than the individual lists it comprises. Table 1 presents the first 25 names on the JCL.² In this and all other tables presented here, we tried to identify psychologists the way they identified themselves in the professional literature.

Introductory Psychology Textbook Citation Frequency

We constructed a list of the 102 psychologists most frequently cited in introductory psychology textbooks, the textbook citation list (TCL). (The list contains 102 rather than 100 names because of tied ranks at the end of the list.) The TCL was constructed by adding citation frequencies together for two previously published lists and a list that we created. The published lists that we used were reported

by Perlman (1980) and Gorenflo and McConnell (1991). Perlman (1980) listed the 50 psychologists most frequently cited in 10 textbooks with copyright dates of 1975 to 1978. Gorenflo and McConnell (1991) listed the 64 psychologists most frequently cited in a sample of 24 textbooks with copyright dates from 1985 to 1989. We constructed a list of the 100 psychologists most frequently cited in five textbooks with copyright dates of 1998 to 2000.³ Our procedure was essentially that employed by Perlman except that we did not adjust for self-citations and bibliography pages. Working from the author indexes, we determined the number of textbook pages on which each psychologist was cited. Individuals not cited in at least four of the five textbooks were not considered. For the remaining eligible names, citation frequencies were summed across the textbooks in which they were cited.

The TCL was constructed by summing citation frequencies across our newly created list and the lists reported by Perlman (1980) and Gorenflo and McConnell (1991). Like the JCL, the TCL samples different time periods and methodologies and is a more comprehensive list than the lists it comprises. Table 2 presents the first 25 names on the TCL.⁴

Survey

We surveyed, by email, approximately 1,725 members of the American Psychological Society (APS). Working from the APS Membership Directory, each of 20 individuals who assisted on this research project sent the survey to ± 80 APS members. The appropriate pages of the Directory were divided into 20 equal segments. The survey was then sent to every 10th name, or the next available name, for which an email address was listed. In those cases in which a return message indicated the email was not successfully delivered, additional names were sampled.

Respondents were asked three questions: (1) “What is your specialization in psychology (e.g.,

developmental, social, cognitive, learning)?” (2) “In your opinion, who are the three greatest psychologists of the 20th century IN YOUR SPECIALIZATION?” (3) “In your opinion, who are the greatest psychologists of the twentieth century in the OVERALL FIELD OF PSYCHOLOGY? (List as many names as you like in order of importance).” Respondents were informed that “greatest” was intentionally unexplicated to allow for their individual interpretation.

The survey response rate was a disappointing and inexplicably low 5.6%. Using only the responses to Question 3, we constructed a rank-ordered list of the 117 psychologists most frequently mentioned, the survey list (SL). (The list contains 117 rather than 100 names because of tied ranks at the end of the list.) The ordinal information contained in those responses was not used because not all respondents presented an ordered list, and we doubted the validity of the ordinal information for especially long lists.

Given the low response rate, is the SL a valid measure of eminence? We saw no reason to discount the survey results despite the low response rate. In the first place, the SL has considerable face validity; we think most of the names on the SL will be quite familiar to most psychologists, and many of those named will likely be recognized as eminent. More importantly, 43 (37%) of the names on the SL are also on the JCL, and 47 (40%) of the names on the SL are also on the TCL. The commonality of names between the SL and the two citation frequency lists is essentially the same as the 40 (40%) of names shared by the JCL and TCL. Moreover, there was a tendency for the names on the SL that are also on the JCL and TCL to be in the same rank order. The 43 names common to the SL and JCL were assigned ranks of 1 to 43 based on their ordinal position within their respective lists. The 47 names common to the SL and TCL were similarly assigned ranks from 1 to 47. Spearman rank-

order correlation coefficients revealed significant ($p < .05$) positive correlations between both sets of ranks, $r_s(41) = .34$ and $r_s(45) = .47$, for names on the SL that are also on the JCL and TCL, respectively. Those correlations are comparable to the rank-order correlation for the 40 names common to the JCL and TCL, $r_s(38) = .40$, $p < .05$. Thus, the SL not only identifies many of the same psychologists as eminent as were identified by the JCL and TCL, but tends to identify them in the same order as well. We also think it is noteworthy that 20 of the psychologists who made the most-eminent list reported here would have been excluded from consideration under our procedures had we not used the survey data. As will be seen, 18 of those 20 had scores on either two or all three of the qualitative variables.

We do not expect the forgoing analyses to obviate all concerns about the validity of the SL. We would emphasize, however, that the SL is not presented as a stand-alone measure of eminence; rather, it is one of six measures contributing to a composite index. Legitimate concerns about validity could just as well be raised about the other measures we employed, but as will be seen, the resulting composite index is quite robust. Table 3 presents the first 26 names on the SL.⁵

Comparisons among the JCL, TCL and SL

A Master List of 219 psychologists comprised all of the different names on the JCL, TCL, and SL. Of those names, only 28 (13% of 219) are common to all three lists. The number of names unique to each list is 47 (47% of 100) for the JCL, 44 (43% of 102) for the TCL, and 56 (48% of 117) for the SL. Thus, these three variables each made substantial, but comparable, contributions to the measurement of eminence. We found some selected comparisons among the three lists to be both interesting and instructive about the differences among the three measures.

Consider the cases of Pavlov, Watson, and Milgram. All three appear in the top one-third of the TCL (with ranks of 22, 17, and 12, respectively), and all three also appear on the SL (with ranks of 6.5, 4, and 67, respectively), but none of them appear on the JCL. Thus, textbook citation frequency and survey measures of eminence clearly place Pavlov, Watson, and Milgram among the most eminent of twentieth century psychologists, but they are not among the top 100 psychologists in journal citation frequency, and so by that measure are not among the most eminent.

Pavlov and Watson appear on the TCL but fail to appear on the JCL for essentially the same reason. Both men made contributions to psychology that are of unarguably great historical significance. The study of learning inaugurated by Pavlov, and for which his name is used as an eponym, remains a very dynamic and important part of empirical and theoretical research in contemporary psychology. However, the terminology and general methodology of Pavlovian conditioning is so integral to the nomenclature of the discipline that contemporary researchers would often have little cause to cite Pavlov in a journal article. Essentially the same thing can be said of Watson. One can hardly overstate the magnitude of the historical significance and continuing pervasive influence of Watson's classic 1913 paper expounding the behaviorist viewpoint. On the other hand, except for historical, philosophical, or methodological articles about behaviorism, most psychologists would likely have little occasion to cite Watson in a journal article. Because of their historical significance and continuing influence, however, authors of introductory psychology textbooks can hardly not cite Pavlov and Watson. Milgram, although not among the 100 most-cited in the journal literature, is probably so extensively cited in introductory psychology textbooks primarily because his work on obedience to authority makes such good copy, that is, students find it highly interesting, and because it had such important implications for

protection of human research participants. In these and similar cases, the JCL and TCL are disparate measures of eminence, but used in conjunction they provide a more balanced picture.

There are also psychologists identified as highly eminent by the JCL but not by the TCL. In some cases, the high frequency of journal citations is due to authors referencing statistical procedures, instrumentation, or methodology. Thus, for example, Winer and Siegel (statisticians), and Rotter (locus of control instrument), have ranks of 4, 6 and 18, respectively, on the JCL, but not surprisingly do not appear on the TCL or SL. On the other hand, consider Herb Simon. Simon's contributions to psychology are held in such high regard that he is among the most frequently cited in the professional journal literature (a rank of 32.5 on the JCL), and he was also judged to be among the most eminent psychologists by respondents to our survey (a rank of 24 on the SL), yet he is not cited frequently enough in introduction to psychology textbooks to have made the TCL and is thus not eminent by that measure.

Why would a Nobel Prize winning psychologist not be extensively cited in introduction to psychology textbooks when his work is among the most highly regarded and cited in the professional literature? Should not introductory psychology textbooks, for many people the principal and only exposition of psychology, present the most highly regarded work the discipline has to offer? That this is largely the case has been an explicit assumption of previous analyses of who is cited in introductory psychology textbooks (e.g., Kaess & Bousfield, 1954; Knapp, 1985; Perlman, 1980). However, as noted by Perlman (1980), introductory psychology textbooks likely often eschew presentation of highly technical and complicated research. Simon's research on human decision making, very likely falls into that too-technical category.

One might suspect that a survey would tend to identify as eminent the same psychologists whose work is most often cited in journals and introduction to psychology textbooks and whose names are therefore relatively familiar. Although this may indeed be true to some extent, it is perhaps noteworthy that the SL also uniquely identified many individuals as eminent; 48% of the names on the SL are unique to that list. As examples, Tolman, Vygotsky, and Köhler had ranks on the SL of 14.5, 19, and 19, respectively, but none of them appeared on either the JCL or the TCL. Thus, these three psychologists are among the most eminent as measured by our survey, but not as measured by journal citations or introductory textbook citations. Their presence in the top 20% of the SL strongly indicates they merit some consideration for the most eminent list, consideration that, as stated earlier, would not be forthcoming without use of the survey measure.

The forgoing, albeit selected, comparisons among the JCL, TCL and SL illustrate some of the limitations inherent in any single-criterion measure of eminence, and strengthen the rationale for our multiple criterion approach.

Qualitative Measures of Eminence

The JCL, TCL and SL, as described above, are quantitative measures. We also employed three qualitative measures of eminence that were applied to the 219 different names that appear on the JCL, TCL, and SL. The qualitative variables we used were whether or not a given psychologist (a) was elected to the NAS, (b) was a recipient of the APA Distinguished Scientific Contributions Award and/or elected APA President (as of 1999), and (c) has his or her surname in use as an eponym. These qualitative variables will be referred to, respectively, as NAS, APA, and EP. We combined the APA Award and APA Presidency into a single APA variable on the assumption that, in many cases, the very

scientific contributions that led to receipt of the Award were also instrumental in an individual's election as APA president. (In fact, roughly one-quarter, 24%, of the psychologists in this study who received credit on the APA variable served as APA president and received the Outstanding Scientific Contributions Award.) Our source for eponyms was an unpublished list referenced by Roedelein (1995) which included eponyms identified by Zusne (1987).

Calculation of Composite Scores

Because frequency scores on the JCL, TCL and SL were positively skewed, they were transformed to logarithms. For each list, the log-transformed scores were then converted to z scores. The three qualitative variables were converted to a single quantitative variable by assigning each of the 219 names on the master list a score of 0, 1, 2, or 3 which corresponded to the number of qualitative variables for which an individual received credit. These scores were converted to Z -scores without being subjected to a logarithmic transformation. For each name, we then calculated a composite score which was the mean z score across all four variables (JCL, TCL, SL, and the quantified qualitative variables).

For names that do not have a score on one or more of the four variables, calculating a composite score as the mean z score across all four variables is problematic. These names must be assigned some score in place of the missing value(s); otherwise, the composite score will be inflated rather than reflecting the adverse consequences of not being on a list. The solution to this problem that we used for names not on the JCL or TCL represents a sort of compromise. In the first place, we think it is highly unlikely that for names on the Master List that do not appear on the JCL or TCL, the actual number of citations is zero. Because the actual number of citations is somewhere between zero and one less than

the smallest frequency required to make the list, we replaced missing values with the z score of the logarithm of the frequency score midway between those two values. The situation is more straightforward for names not on the SL or that did not receive credit for any of the qualitative variables. In those cases, the real frequency was zero. For names not on the SL, we replaced missing values with the z score for a logarithmic score of zero, and for names with no qualitative variable credit, we used the z score for a frequency score of zero.

The results of these calculations are presented in Table 4 as a rank-ordered list of the 100 (99 actually presented) most eminent psychologists of the twentieth century. For each name, Table 4 also shows the rank on each quantitative variable, and the qualitative variables for which credit was given by indicating the relevant date and eponym. In cases of multiple eponyms associated with the same name, only one is presented. Dashes or empty cells indicate no credit was given for the corresponding variable.⁶

The logarithmic transformations applied to frequency scores and the quantification of the qualitative variables are procedures that were not employed in the originally submitted manuscript. These procedures were recommended by a reviewer and the editor. In the original manuscript, frequency scores (rather than logarithms) on the JCL, TCL and SL were converted to z scores which were then averaged across the three lists to produce a rank ordered list of 219 names. The qualitative variables were then used to “adjust” the position of names upward or downward in the list. We think it reflects favorably upon the present use of six separate measure of eminence that the logarithmic transformation and quantification of the qualitative variables, a substantial change in the treatment of the data, had almost no effect on who made the final list. Only 10 names from the original list were replaced by new

names, and nine of those changes occurred in positions 76 to 100. Of the original top 25, only five were replaced by new names, but those names all came from relatively high positions (26 to 44) in the original list, and only two of the top 10 changed. For the entire list, the mean change in ordinal position due to the revised analysis was 2.05 positions ($SD = 16.79$). This is a testament to the robust nature of the combined measures.⁷

Predictors of Eminence

For the 219 different psychologists on the Master List (which comprises the JCL, TCL, and SL) the best predictors of eminence were the qualitative variables. Twenty-eight of the 100 most eminent psychologists received credit for all three qualitative variables, and 59 received credit for at least two qualitative variables. Only eight made the final list without credit for a qualitative variable (Jensen, Wolpe, E. Loftus, Sternberg, Plomin, Berkowitz, A. Freud and #100). In general, these individuals all had relatively high scores on two of the three quantitative variables. The NAS and APA variables were equally predictive, followed closely by the EP variable. The master list contained 67 NAS members. Of those, 53 made the most eminent list. Thus, given that an individual on the master list was a member of NAS, the probability of being on the most eminent list was .79. That NAS membership should be such a strong predictor of eminence is not surprising. Over (1971) reported data suggesting that less than one-tenth of one percent of all American psychologists are likely to be honored by election to NAS. Having been APA president, and/or a recipient of the APA Distinguished Scientific Contributions Award was an equally good predictor of eminence. A total of 89 psychologists on the master list received credit for the APA variable. Of those, 70 made the most eminent list, for a probability of .79. Simonton (1992), in presenting a profile of the typical eminent American psychologist, noted that he or

she would have almost a .50 probability of being honored by election to the APA presidency. Although only 32 of the 100 psychologists on our most-eminent list were elected APA president, Simonton (1992) studied eminent psychologists who were deceased by 1967. The present most-eminent list included many contemporary psychologists who, because of the growth in number of psychologists and outstanding presidential candidates, and the decreasing trend of electing academic psychologists, very likely had much less of a chance of being elected APA president (Simonton, 1992).

We found eponyms associated with 77 of the 219 names on the master list. Of those 77, 52 made the most eminent list for a predictive probability of .74. The eponym variable is somewhat problematic because there seems intuitively to be quite a difference between eponyms like “Skinnerian,” “Freudian,” or “Pavlovian,” on the one hand, and eponyms like “Festinger’s cognitive dissonance theory,” or “Newcomb’s attraction studies,” on the other hand. Then, too, there are eponyms that seem to be somewhere in between those extremes, for example, “Maslow’s hierarchy,” and “James-Lange theory of emotion.” As one reviewer asked, “Why don’t we say ‘Miller’s magical number seven,’ or ‘Sperry’s split-brain studies?’” Actually, we suspect we do use those expressions in print. However, our source for eponyms was a list referenced by Roeckelein (1995) which included those reported by Zusne (1987). Roeckelein constructed his list of eponyms from the entries in seven different dictionaries of psychology, entries in the subject index from 30 specialty area textbooks published from 1953 to 1994, and Zusne’s book. That is a reasonably wide net, and the eponyms listed in Table 4 are evidently in sufficiently wide-spread use to have been caught by it. Of the 52 eponyms in Table 4, 36 (69%) appeared in two or more of the sources used by Roeckelein (1995). The many possible eponyms one could conceivably associate with the remaining names in Table 4 were evidently below the threshold of

detection of the Roewecklein (1995) study. This is simply on a par with the fact that 37 names on the most-eminent list were not on the JCL. As noted earlier, it is unlikely they have citation frequencies of zero; they were simply below the threshold of detection for the JCL.

Among the quantitative variables, the best predictors of eminence were journal citations and the survey. The JCL contributed 63 names to the most eminent list ($p = .63$) and the SL contributed 76 (of 117 on the SL) ($p = .65$). Introductory textbook citations turned out to be the weakest predictor of eminence. The TCL contributed only 55 (of 102) names to the most eminent list ($p = .54$). We remain undecided as to whether this informs us about the value of textbook citation frequency as a measure of eminence, or informs us about the quality of introductory psychology textbooks.

Bias

It was suggested to us that the measures of eminence used in this study might have favored American psychologists. Some measures might also have favored those whose significant contributions occurred more toward the latter part of the twentieth. Consider first the possibility of temporal bias. We suggest that the qualitative variables NAS, APA, and EP are largely free of temporal bias. The NAS and APA variables span the century. The NAS was established in 1863, and the first psychologist elected to NAS membership was James McKeen Cattell in 1901 (Over, 1981). The APA Distinguished Scientific Contributions Award dates only to 1956 and might somewhat favor psychologists who were most productive in the latter part of the twentieth century, but the APA presidency dates to 1892. Moreover, some of the earliest recipients of the APA Award made significant contributions to psychology relatively early in the century (e.g., Köhler, K. Spence, Tolman). Finally, although it might sometimes take time for an eponym to become established and used, and over

time some eponyms will fall into disuse, the EP variable is not time-dependent in any systematic way.

For the most part, it seems likely the qualitative variables would work to partially mitigate any temporal bias that might arise from the quantitative variables.

The JCL, TCL and SL were based on data collected mostly in the latter part of the century. Prima facie, we think the JCL, despite the fact the Freud ranked first on that list, would tend to favor more contemporary psychologists because journal articles usually cite relatively contemporaneous works.⁸ On the other hand, while introductory psychology textbooks do cite contemporarily important psychologists, they give considerable emphasis to historically older, well-established authorities. Gorenflo and McConnell (1991) reported that it takes about 20 years for an article to acquire the status of a “classic” work and become consistently cited in introductory psychology textbooks. Thus, whereas the JCL might have a recency bias, the TCL might have an offsetting historically older bias even though it was based on relatively recent textbooks. Finally, because survey respondents were free to name psychologists from any part of the century, we would not expect the SL to have a systematic temporal bias.

One might attempt an empirical evaluation of the JCL, TCL and SL to see if any one of them contains a disproportionate number of names from the early, middle, or late part of the century. However, it is not clear what the correct proportions should be. There were relatively few “psychologists” at the beginning of the century; today there are more than 159,000 who are members of APA, and a very sizeable number more who are not members of APA. In our view, approximately 25% of the most eminent psychologists listed in Table 4 might reasonably be said to have made their significant research contributions during the first one-half of the century. Given the growth in the number

of psychologists during the century, that figure does not strike us as obviously disproportionate.

Much more problematic is the extent to which the most-eminent list has an American and English Language bias. This is difficult to evaluate because contemporary psychology is so dominated by Americans (Simonton, 1992). Nevertheless, our sources were all essentially American sources. Although the NAS variable included foreign associates (e.g., Broadbent, Milner, Piaget), and non-American psychologists have received the APA Distinguished Scientific Contributions Award, it seems likely that such recognition would be disproportionately conferred upon American psychologists. Moreover, we used American journals and textbooks, and we essentially surveyed American psychologists. Although all of these sources contributed non-American names, and non-American names do appear in the most-eminent list, the variables we used are nevertheless likely to have favored American psychologists. Only the eponym variable seems somewhat neutral with respect to nationality, but even there our sources were American products. Thus, the most-eminent list reported here is probably somewhat biased in favor of American psychologists.

Comparisons with Other Studies and Measures of Eminence

The most-eminent list reported here, for the most part, included the names of psychologists other studies and measures have identified as among the most eminent. Annin et al. (1968), for example, assembled a list of names of some 1040 people who they judged to be important to the history of psychology from 1600 to 1967. Excluded from the list were any psychologists still living in 1967. Nine psychologists then rated each name on a scale of 1 to 3. A score of 1 indicated the juror recognized the name but could not specify the person's contribution to psychology. A score of 2 meant the juror was at least somewhat familiar with the person's contribution. A score of 3 was given if, in the juror's

opinion, the person was “of such distinction that his name should surely be included in a list of the 500 most important psychologists since 1600 and not living” (Annin et al., 1968, p. 304). A total score for each name was calculated by summing scores across jurors. The total scores were used to construct a list of 538 important contributors to psychology arranged into rank-ordered categories. Names in the highest category all received a total score of 27 (i.e., 3 points from each of the nine jurors). Names in the next category received 26 points, and so on. Of the names on the Annin et al. (1968) list, 21 appear on the most eminent list reported here, and 17 of those 21 were in the top category of the Annin et al. list, a category with a total of 53 names. If one removes from the top category of the Annin et al. list the names of individuals not generally considered to be psychologists, (e.g., Charles Darwin, René Descartes, David Hume, et al.), and the names of psychologists whose contributions were not made in the twentieth century (e.g., Gustav Fechner, Johann Herbart, et al.), roughly one-half of the remaining names appear on the most-eminent list reported here.

Coan and Zargona (1962) asked experts (mostly teachers of history of psychology) to rate 142 candidate psychologists according to “importance of contributions to psychological theory, “ (p. 316). They reported a list of the 75 most highly rated. They also reported a list of 54 that comprised the top 50 overall and the top 10 in each of nine decades from 1880-1889 to 1950-1959. After removing non-twentieth century psychologists, our list captured 47% of their top 75 and 58% of the list of 54.

We think this degree of agreement between our 100 most-eminent list (Table 4) and the top category of 53 names in the Annin et al. (1968) list, and the two lists reported by Coan and Zargona (1962) is actually quite good. All three lists were based on a single measure of eminence, expert ratings, and were compiled in the 1960s. The proportion of 20th century psychologists in each of these three

lists appearing in Table 4 is about the same as the proportion of names in Table 4 contributed by any one of the variables employed here. Moreover, there has been one-third of a century of psychology since those lists were compiled.

Korn et al. (1991) surveyed historians of psychology and psychology department chairs, asking both groups to list the most important psychologists of all time and the most important contemporary psychologists. They reported four short (9 to 11 names) rank-ordered lists of the most important psychologists: historian-all time, historian contemporary, department chair all-time, and department chair contemporary. Only three twentieth-century psychologists on the Korn et al. lists are not on the most-eminent list reported in Table 4 here. The least agreement was with the historian all-time list which included Binet and Ebbinghaus, neither of whom appear among the names in Table 4 (both, however, did appear in the SL). All of the twentieth century psychologists' names on the historian contemporary and department chair all-time lists appear in Table 4, and only one name (Rescorla) on the department chair contemporary list is not in Table 4. Thus, we identified as among the most eminent virtually all of the psychologists identified by Korn et al.

Moore and Seberhagen (reported in by Myers, 1970) asked department chairs to name, in rank order, the 10 most influential contemporary psychologists and the 10 most influential from any time period. Myers (1970) presented the resulting two lists of the top ten names. All but one twentieth century psychologist (Binet) on those lists appeared in our most eminent list. To the best of our knowledge, nine psychologists have been awarded the National Medal of Science. They are: Anne Anastasi, William Estes, Eleanor Gibson, George Miller, Neal Miller, Herbert Simon, Roger Shepard, B.F. Skinner, and Roger Sperry. All except Anastasi (who made the SL) appear in Table 4 here.

The above comparisons with other studies and measures of eminence were not intended to be exhaustive. Rather, they show that our approach to measuring eminence in psychology resulted in a most-eminent list that very likely includes the vast majority of psychologists who should be on such a list. Bear in mind that, in relation to the very large number of twentieth century psychologists, our most-eminent list is a very short list, and necessarily omits many truly eminent psychologists. We would argue, for example, that psychologists who meet our NAS or APA criteria but do not appear in our most-eminent list are nevertheless very eminent psychologists, but they may not be among the 100 most eminent (or, of course, a psychologist may be number 100 and not reported here). Does our most-eminent list include some false positives? We think it very likely does, but because a specific case is far from obvious, we are reluctant to speculate on this point.

Applications

As stated earlier, we believe the most-eminent list reported here will be of considerable interest to the psychological community. Beyond that, the list has much potential for use in studies in the psychology of science, historical studies of twentieth century psychology, and in the psychology classroom. Just a few of the possibilities are described below.

Simonton (1992) described characteristics of the typical eminent American Psychologist. How general is that characterization of eminence? Would a similar characterization emerge from an analysis of the present most-eminent list? What distinguishes the roughly one-half of the psychologists in NAS who are on the most-eminent list from the remainder who are not? It would be informative to know if those two groups can be distinguished on the basis of the dimensions of theoretical orientation employed by Simonton (2000). The psychology of science review article by Feist and Gorman is also a

rich source of questions that could be asked about the psychologists on the most-eminent list. Perhaps historians of psychology will find the most-eminent list useful for purposes such as evaluating how psychology has evolved over the century, and how different schools of thought are represented or may have shaped the list. Finally, teaching applications, especially for introductory psychology and history of psychology classes, are practically limitless. For example, one could have students (a) identify the seminal contribution(s) of one or more of the psychologists on the list, (b) debate the relative rankings of two psychologists, (c) develop an argument for why a particular psychologist who is not on the most-eminent list should be (or vice-versa), or (d) write one or more biographies of eminent psychologists. Finally, a book of readings comprising the seminal works of the psychologists on the most-eminent list would make a tremendous overview of twentieth century psychology.

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Footnotes

¹One can also count frequency of eponym usage to obtain quantitative data from this measure (Roeckelein, 1996).

²The JCL can be seen in its entirety (both rank-ordered and alphabetical versions) at <http://edtech.tph.wku.edu/~shaggblo/jcl.htm>.

³A list of the five textbooks used is available on from the first author and on the web at: <http://edtech.tph.wku.edu/~shaggblo/tcl.htm>.

⁴The TCL can be seen in its entirety (both rank-ordered and alphabetical versions) at <http://edtech.tph.wku.edu/~shaggblo/tcl.htm>.

⁵The SL can be seen in its entirety (both rank-ordered and alphabetical versions) at <http://edtech.tph.wku.edu/~shaggblo/sl.htm>.

⁶Table 4, including an alphabetical version, is available on the web at: <http://edtech.tph.wku.edu/~shaggblo/Table4.htm>.

⁷A description of the original data analysis and resulting most-eminent list is available on the world wide web at <http://edtech.tph.wku.edu/~shaggblo/greatestold.htm>.

⁸We were not aware of any empirical data to support this assertion, so we examined the reference list of one quasi-randomly selected article from each of eight different psychology journals published between 1969 and 1994. The age of a reference was calculated by subtracting the publication year of the reference from the publication year of the article in which it was referenced. The mean age of the 141 references listed in those articles was $\underline{M} = 8.38$ years, $\underline{SD} = 9.19$. The modal age was 4 years.

Table 1

The 25 psychologists most frequently cited in the professional psychological journal literature

Rank	Name	Citation Frequency
1	Freud, Sigmund	13,890
2	Piaget, Jean	8,821
3	Eysenck, H. J.	6,212
4	Winer, B.J.	6,206
5	Bandura, Albert	5,831
6	Siegel, S.	4,861
7	Cattell, Raymond B.	4,828
8	Skinner, B.F.	4,339
9	Osgood, Charles E.	4,061
10	Guilford, J.P.	4,006
11	Campbell, Donald T.	3,969
12	Festinger, Leon	3,536
13	Miller, George A.	3,394
14	Bruner, Jerome S.	3,279
15	Cronbach, Lee J.	3,253
16	Erikson, Eric H.	3,060
17	Edwards, A.L.	3,007

18	Rotter, Julian B.	3,001
19	Byrne, Donn	2,904
20	Kagan, Jerome	2,901
21	Wolpe, Joseph	2,879
22	Rosenthal, Robert	2,739
23	Underwood, Benton J.	2,686
24	Paivio, Allan	2,678
25	Rokeach, Milton	2,676

Note. The entire list of the 100 psychologists most frequently cited in the professional journal literature can be accessed on the world wide web at <http://edtech.tph.wku.edu/~shagblo/jcl.htm>.

Table 2

The 25 psychologists most frequently cited in introductory psychology textbooks

Rank	Name	Citation Frequency
1.	Freud, Sigmund	560
2	Skinner, B.F.	310
3	Bandura, Albert	303
4	Piaget, Jean.	240
5	Rogers, Carl.	202
6	Schachter, Stanley	200
7	Harlow, Harry F.	175
8	Brown, Roger	162
9	Miller, Neal E.	154
10	McClelland, D.C.	153
11	Erikson, Eric H.	151
12	Milgram, Stanley	146
13	Seligman, Martin E.P	143
14	Maslow, Abraham	142
15	Bower, Gordon H.	138
16	Kohlberg, Lawrence	128
17	Watson, John B.	127

18	Allport, Gordon W.	124
19	Festinger, Leon	121
20	Loftus, Elizabeth F.	120
21	Zajonc, R.B.	118
22	Pavlov, Ivan P.	117
23	Kagan, Jerome	116
24.5	Sternberg, Robert J.	114
24.5	Mischel, Walter	114

Note. The entire list of 100 psychologists most frequently cited in introductory psychology textbooks can be accessed on the world wide web at <http://edtech.tph.wku.edu/~shagblo/tcl.htm>.

Table 3

The 26 psychologists most frequently named in the survey

Rank	Name	Frequency
1	Skinner, B.F.	58
2	Piaget, Jean	33
3	Freud, Sigmund	28
4	Watson, John B.	24
5	Bandura, Albert	23
6.5	James, William	21
6.5	Pavlov, Ivan P.	21
8	Lewin, Kurt	17
9.5	Rogers, Carl	14
9.5	Thorndike, Edward	14
11.5	Festinger, Leon	13
11.5	Hebb, D. O.	13
14.5	Allport, Gordon	11
14.5	Hull, Clark	11
14.5	Miller, Neal	11
14.5	Tolman, Edward C.	11
17	Erikson, Eric	10

19	Köhler, Wolfgang	9
19	Maslow, Abraham	9
19	Vygotsky, Lev Semenovich	9
21	Ainsworth, Mary D.	8
24	Eysenck, H. J.	7
24	Luria, Alexander R.	7
24	Schachter, Stanley	7
24	Simon, Herbert	7
24	Sperry, Roger W.	7

Note. The entire list of 100 psychologists most frequently named in the survey can be accessed on the world wide web at <http://edtech.tph.wku.edu/~shaggblo/sl.htm>.

Table 4

The 100 (99 reported) most-eminent psychologists of the twentieth century

Rank	Name	JCL Rank	TCL Rank	SL Rank	NAS	APA Award/President	Eponym
1	Skinner, B.F.	8	2	1	1950	1958/--	Skinnerian
2	Piaget, Jean	2	4	2	1966	1969/--	Piagetian
3	Freud, Sigmund	1	1	3	--	-- / --	Freudian
4	Bandura, Albert	5	3	5	--	1980/1974	Bandura's social learning theory
5	Festinger, Leon	12	19	11.5	1972	1959/ --	Festinger's cognitive dissonance theory
6	Rogers, Carl R.	28.5	5	9.5	--	1956/1947	Rogesian Therapy
7	Schachter, Stanley	46	6	24	1983	1969/ --	Schachter's affiliation studies
8	Miller, Neal E.	13	9	14.5	1958	1959/1961	
9	Thorndike, Edward	40	50	9.5	1917	-- /1912	Thorndike's puzzle box
10	Maslow, A.H.	37	14	19	--	-- /1968	Maslow's hierarchy
11	Allport, Gordon W.	51	18	14.5	--	1964/1939	Allport A-S reaction study
12	Erikson, Eric H.	16	11	17	--	-- / --	Erikson's psychosocial stages
13	Eysenck, Hans J.	3	30	24	--	-- / --	Eysenck personality inventory
14	James, William	--	29	6.5	1906	-- / 1904	James-Lange theory of emotion

15	McClelland, David. C.	34	10	31	--	1987/ --	
16	Cattell, Raymond B.	7	37	31	--	-- / --	Cattell 16 factor personality questionnaire
17	Watson, John B.	--	17	4	--	-- /1915	Watsonian Behaviorism
18	Lewin, Kurt	47	73.5	8	--	-- / --	Lewinian psychology
19	Hebb, D.O.	58	--	11.5	1979	1961/1960	Hebbian
20	Miller, George A.	43	46	67	1962	1963/1969	
21	Hull, Clark L.	73	73.5	14.5	1936	--/1936	Hullian
22	Kagan, Jerome	20	23	67	--	1987/ --	
23	Jung, C.G.	50	40	39.5	--	-- / --	Jungian
24	Pavlov, Ivan P.	--	22	6.5	--	-- / --	Pavlovian
25	Mischel, Walter	48	24.5	67	--	1982/ --	
26	Harlow, Harry F.	100	7	51	1951	1960/1958	
27	Guilford, J. P.	10	61	--	1954	1964/1950	Guilford-Martin personnel inventory
28	Bruner, Jerome S.	14	70.5	31	--	1962/1965	
29	Hilgard, Ernest R.	67	27	51	1948	1967/1949	
30	Kohlberg, Lawrence	39	16	97	--	-- / --	Kohlberg stages of moral development
31	Seligman, Martin E.P.	93	13	31	--	-- /1998	
32	Neisser, Ulric	59	71	31	1984	-- / --	
33	Campbell, Donald T.	11	--	67	1973	1970/1975	Campbell's design approach

34	Brown, Roger	30	8	--	1972	-- / --	
35	Zajonc, R.B.	--	21	39.5	--	1978/ --	Zajonc social facilitation
36	Tulving, Endel	32.5	47.5	--	1988	1983/ --	
37	Simon, Herbert A.	32.5	--	24	1953	1969/ --	
38	Chomsky, Noam	--	28	39.5	1972	1984/ --	
39	Jones, Edward E.	57	44.5	--	--	1977/ --	Jones' correspondent inference theory
40	Osgood, Charles, E.	9	--	97	1972	1960/1963	Osgood's transfer surface
41	Asch, Solomon E.	74	31	97	--	1967/ --	Asch situation
42	Bower, Gordon H.	--	15	67	1973	1979/ --	
43	Kelley, Harold H.	72	35	--	1978	1971/ --	Kelley's attribution theory
44	Sperry, Roger W.	--	64	24	1960	1971/ --	
45	Tolman, Edward C.	--	--	14.5	1937	1957/1937	Tolman's purposive behaviorism
46	Milgram, Stanley	--	12	67	--	-- / --	Milgram's obedience studies
47	Jensen, Arthur R.	28.5	56	97	--	-- / --	
48	Cronbach, Lee J.	15	--	--	1974	1973/1957	Cronbach's Coefficient Alpha
49	Bowlby, John	55	--	31	--	1989/ --	
50	Köhler, Wolfgang	--	--	19	1947	1956/1959	Köhler's prism experiments
51	Wechsler, David	49	--	39.5	--	-- / --	Wechsler adult intelligence scale
52	Stevens, S.S.	27	--	--	1946	1960/ --	Stevens' power law
53	Wolpe, Joseph	21	43	--	--	-- / --	

54	Broadbent, D.E.	41	--	--	1970	1975/ --	Broadbent's filter model
55	Shepard, Roger N.	56	--	--	1977	1976/ --	Kruskel-Shepard Scaling
56	Posner, Michael I.	61	--	97	1981	1980/ --	
57	Newcomb, Theodore M.	76	81.5	--	1974	1976/1956	Newcomb's attraction studies
58	Loftus, Elizabeth F.	--	20	51	--	-- / --	
59	Ekman, Paul	--	26	97	--	1991/ --	
60	Sternberg, Robert J.	--	24.5	51	--	-- / --	
61	Lashley, Karl S .	--	--	39.5	1930	-- /1929	Lashley's jumping stand,
62	Spence, Kenneth	66	--	51	1955	1956/ --	
63	Deutsch, Morton	38	--	--	--	1987/ --	Deutsch illusion
64	Rotter, Jullian B.	18	--	--	--	1988/ --	Rotter locus of control scale
65	Lorenz, Konrad	--	39	97	1966	-- / --	
66	Underwood, Benton J.	23	--	--	1970	1973/ --	
67	Adler, Alfred	--	55	67	--	-- / --	Adlerian
68	Rutter, Michael	44	--	97	--	1995/ --	
69	Luria, Alexander R.	--	--	24	1968	-- / --	Luria-Nebraska Neuropsychological Battery
70	Maccoby, Eleanor E.	68	--	67	1993	1988/ --	
71	Plomin, Robert	86	70.5	51	--	-- / --	
72.5	Hall, G. Stanley	--	--	67	1915	-- /1924	Hall's theory of interpersonal zones
72.5	Terman, Lewis M.	--	--	67	1928	-- /1923	Terman-McNemar Test of Mental

Ability

74.5	Gibson, Eleanor J.	--	--	31	1971	1968/ --	
74.5	Meehl, Paul E .	--	--	31	1987	1958/1962	
76	Berkowitz, Leonard	42	75	--	--	-- / --	
77	Estes, William K.	64	--	97	1963	1962/ --	
78	Aronson, Eliot	--	32	--	--	1999/ --	
79	Janis, Irving L.	--	33	--	--	1981/ --	
80	Lazarus, Richard S.	--	34	--	--	1989/ --	
81	Cannon, W. Gary	--	68	--	1914	-- / --	Cannon-Bard theory of emotion
82	Edwards, A.L.	17	--	--	--	-- / --	Edward's personal preference schedule
83	Vygotsky, Lev Semenovich	--	--	19	--	-- / --	Vygotsky test
84	Rosenthal, Robert	22	--	--	--	-- / --	Rosenthal effect
85	Rokeach, Milton	25	--	--	--	-- / --	Rokeach value survey
88.5	Garcia, John	--	--	97	1983	1979/ --	Garcia Effect
88.5	Gibson, James J.	--	--	97	1967	1961/ --	Gibson theory of space perception
88.5	Rumelhart, David	--	--	97	1991	1996/ --	Rumelhart-Lindsay-Norman process model
88.5	Thurston, L.L.	--	--	97	1938	--/1933	Thurston Attitude Scale
88.5	Washburn, Margarete	--	--	97	1931	--/1921	Cannon-Washburn experiment

88.5	Woodworth, Robert	--	--	97	1921	--/1914	Woodworth personal data sheet
93.5	Boring, Edwin G.	--	--	51	1932	--/1928	
93.5	Dewey, John	--	--	51	1910	--/1899	
93.5	Tversky, Amos	--	--	51	1985	1982/ --	
93.5	Wundt, Wilhelm	--	--	51	1909	-- / --	Wundt's emotional laws
96	Witkin, Herman A.	31	--	--	--	-- / --	Witkin field independence
97	Ainsworth, Mary D.	--	--	21	--	1989/ --	
98	Mowrer, O. Hobart	77	--	51	--	-- /1954	
99	Freud, Anna	45	--	97	--	-- / --	