
Psychological Literacy

A First Approximation

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ABSTRACT: Reported here are the results of a study to determine which terms and concepts in psychology's basic subfields are judged to be of sufficient importance that they should be general knowledge within the psychological community, especially to students. Questionnaires containing 200–250 terms and concepts from each of 10 subfields of psychology were sent to authors of textbooks in those subfields with a request that they make such judgments in the form of ratings. Authors suggested additional terms that were the basis for a second questionnaire. The results have been compiled into tables of "Psychology's Top 100" concepts and of ranked lists of the 100 highest rated terms for each of the 10 subfield areas studied.

What are the nuggets in the mother lode of psychological knowledge? How would we know them when we saw them? Some time ago I saw these two questions as crucial to the identification of a general core of psychology that psychologists and their students might be expected to know. The reader will recognize in this concern the influence of E. J. Hirsch, whose book *Cultural Literacy: What Every American Needs To Know* caught the attention of the American public in 1987. Hirsch's thesis was that many Americans have not been provided with the educational background necessary to understand efforts at serious communication, in other words to be good citizens. What they need, according to Hirsch, is a knowledge base that is encompassed in a long list of terms, concepts, sayings, and people that is presented in the book.

Although Hirsch's thesis and his materials have been variously received, I found the general idea of a core of knowledge appealing; citizens are also needed in the psychological community. Perhaps U.S. colleges and universities might come to agree on a basic set of materials that psychology majors might be expected to master prior to their graduation. Students might be guided in their course selection by the idea that competence with a recognizable set of concepts and materials was the norm for graduate work or even for an undergraduate education. Not the least of the attractions of a core of psychological material is its explicit message—that psychology is much more than it has been portrayed—to a public that knows only the "junk" psychology propagated by the popular

press. Psychologists would all agree that psychology has much to say in a large number of important and fascinating areas. But what are the more critical parts of these areas that an educated public should be apprised of?

Thus motivated, I undertook the task of developing a list of terms and concepts that our students should know. If not cultural literacy, I could at least aspire toward the identification of a measure of *psychological literacy*.

Study Details

In late 1988 I experimented with a pilot questionnaire to a group of college teachers of psychology. I was encouraged by enthusiastic expressions of interest in the project and from the feedback that my 200-item questionnaire required only 10–15 min to complete. With my confidence in the feasibility of the project bolstered, I embarked on a serious program of data collection. I had decided that my target group of participants should be textbook authors, those who had written in specific subfields. I made an arbitrary selection of subfields among those that constitute the core of most of our introductory textbooks. My list consists of abnormal, behavior, biological, cognitive, developmental, history and systems, statistics and methods, perception, personality, and social, 10 subfields in all.

I made some rather arbitrary decisions to deal with overlap of subfields, sometimes by excluding particular subareas from subfields, sometimes by including subareas in more than one subfield. The decision was a pragmatic one intended to keep the questionnaires in the several subfields roughly comparable in terms of numbers of items. Table 1 presents these subfields and their general domain description.

Using textbook glossaries and indexes and with the assistance of colleagues, I assembled 200–250 basic terms in each of these subfields. For this first approximation of a core subject matter, I tried not to include names, except in some instances in which a name was needed for identification (e.g., Fechner's law). I had no illusion that I had somehow managed to capture all of the terms and concepts that should be included in each subfield list, and so I invited respondents to provide additional terms that they felt should be added to the list. Many respondents

Table 1
Subfield Descriptions

Subfield	Abbreviation	Description
Abnormal Behavior	ABNL BEHV	Functional disorders, organic disorders, therapies, psychoanalytic theory. Animal learning and behavior, conditioning and learning phenomena, learning theory. Excludes verbal learning.
Biological	BIOL	Neuro-anatomy and -physiology (except sensory processes), biochemical approaches, drug action, organic disorders.
Cognitive Developmental	COGN DEVT	General cognitive, verbal learning, psycholinguistics, decision processes. Life span development of everything. Personality theory, tests, intelligence, psychoanalytic theory.
History & Systems	HIST	History of psychology, older systems and theories, behavior theory and phenomena, philosophy of science.
Methodology & Statistics	METH	Statistics, research methodology, measurement theory, test theory, survey theory and methodology.
Perception	PERC	Perceptual processes, sensation, sensory mechanisms, sensory anatomy and physiology, psychophysics.
Personality Social	PERS SOCL	Personality theory, personality tests, intelligence, psychoanalytic theory. Human emotion and motivation, small-group dynamics, interpretation of others, cultural influences, organizations.

did so, and the collected set of suggested terms for each subfield was included in a second questionnaire that was sent out to those authors who had responded to my original version.

For participants in the study, I collected a list of about 250 authors of current textbooks, attempting insofar as possible to have essentially the same number for each subfield. In some subfields, however, there are not many existing texts—perception and biological/physiological, in particular.

My concern was with conceptual issues, and I attempted to establish rating criteria that would focus my respondents on such issues. For example, I proposed that a rating of 5, the highest, should be given to those terms that every psychology baccalaureate should be able to discuss and relate to other terms; *to make knowledgeable statements about* was the way it was phrased in the instructions to the questionnaire. A rating of 4 should be given to terms that every psychology baccalaureate should recognize. The criteria are listed in Table 2 as they were presented to the participants. Admittedly, the criteria

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I wish to thank all of the anonymous authors for their time, patience, and willingness to participate. My colleagues at George Mason University will also understand that I appreciate their help in compiling lists of terms. Last, the Beagle Brothers deserve thanks for their Timeout applications for the Appleworks program. Without these, the task would not have been attempted.

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constitute a strangely concocted dimension, but it seemed to make sense to my respondents; I had only two comments on the rating scale.

The original round of questionnaires was sent in waves during the summer of 1988. Three follow-up letters, one including the original questionnaire, were sent during the fall of 1988 to authors who had not yet responded. Also, during the fall and winter the second round of questionnaires was sent; these included the subfield terms that had been suggested by those who had responded to the original questionnaire. Finally, two additional follow-up

Table 2
Criteria for Rating Terms

Rating	Criterion
<i>Very important (5)</i>	All psychology baccalaureates should be able to make knowledgeable statements about this term.
<i>Important (4)</i>	All psychology baccalaureates should, at a minimum, recognize this term.
<i>Somewhat specialized (3)</i>	But all psychology doctorates should be able to make knowledgeable statements about this term (and, of course, all above).
<i>Specialized (2)</i>	But all psychology doctorates should, at a minimum, recognize this term.
<i>Overly specialized (1)</i>	This is too specialized for general knowledge even at the doctoral level.

Table 3
Number of Authors Sent Questionnaires
(With Return Data)

Subfield	No. of authors	Returns	%	Second returns	%
Abnormal	23	11	48	—	—
Behavior	22	19	86	14	74
Biological/ Physiological	23	14	61	8	57
Cognition	32	18	56	14	78
Developmental	26	14	54	13	93
History	21	18	86	17	94
Methods/Statistics	32	23	72	23	100
Perception	17	13	76	9	69
Personality	26	12	46	—	—
Social	27	17	63	11	65
Total	249	159	64%	109	80%

letters were sent to nonresponders, one containing a second copy of the original questionnaire. Data about the number of questionnaires and response rates are included in Table 3. Overall, my response rate was 64% of the authors whom I was able to locate. Abnormal and Personality authors provided my lowest rates of return, and these respondents provided no additional terms to be rated; thus, there was no second questionnaire for these subfields. Upon receipt, data were entered into computer files separately for each subfield and then were subjected to analysis.

Analysis: Issues and Resolutions

I had originally thought that presentation of the results of the survey would be a straightforward matter. I would calculate the mean ratings for each item, collate all subfield lists, and then select those items with the highest mean ratings. It occurred to me that a list of "Psychology's Top 100" would be an admirable device for stimulating interest in the whole collection and the motivation that prompted it. The naiveté of such a presumption becomes apparent from the summary data of my original set of top 100 terms presented in Table 4 (the total is actually 113 because of ties). Of these highest rated terms, 42 are from the Methods/Statistics subfield. In retrospect this result is not too surprising. Virtually every psychology major is subjected to a course in statistics, and there are a substantial number of topics we all assume should have been mastered by our students as a result of that experience. Probably more psychology majors are confronted by these terms than any other (with the possible exception of psychoanalytic terminology). What was surprising to me even in retrospect, however, was the inclusion of only 1 term from Cognition in this original set.

Also presented in Table 4 are data on the number of items for each subfield that received an average rating of 5, and also those that received an average rating of better than 4.50. Clearly, for an item to average 5.0, every

rater had to rate it 5.0. Finding 10 or more psychologists who are unanimous about anything clearly represents a major achievement, but it happened in the Statistics subfield! Note that only five terms are rated higher than 4.5 in Cognition, whereas 69 are so rated in Methods/Statistics.

The imbalance between subfields presents a problem in credibility. It did not seem to me to be possible that psychologists in general would stand for a list of Psychology's Top 100 terms in which 42 were from Methods/Statistics. My solution, as will be seen later, was to compose the list by selecting the top 10 terms from each of the subfields.

Before looking at those, however, I will first consider a problem raised by the analysis—why does cognition, which is clearly a dominant research area at present, fare so poorly as a subfield? Why do authors in cognition seem to give us the impression that there are few terms in the cognitive area that every undergraduate psychology major should know about?

My pursuit of an answer to this question led me to perform a number of supplemental analyses of my data. In general, these analyses did not lead to any new insights about cognitive psychology. It seems to be common knowledge, of course, that cognitive psychology is a confused conglomeration with little consensus about subject matter. For example, White (1985) compared the references of seven undergraduate cognitive psychology textbooks and found that only 144 of the total 3,200 references were cited in at least four of the texts. Only 19 publications were included in all seven of the texts! My data indicated only that the mean rating of my Cognition authors was lower than that of any other subfield, a symptom, if not a satisfactory explanation.

More central to the thrust of this article than these ancillary findings, however, are the ratings of the terms and their associated rankings. These are presented in two ways. First, in Table 5, I provide a list of Psychology's Top 100 composed of the 10 most highly rated terms from each of the 10 subfields. These are given in alpha-

Table 4
Highly Rated Terms

Subfield	"Top 100"	5.00	>4.50
Abnormal	20	3	34
Behavior	15	3	27
Biological/Physiological	5	0	22
Cognition	1	0	5
Developmental	6	1	12
History	9	0	16
Methods/Statistics	42	10	69
Perception	7	1	38
Personality	4	2	21
Social	4	0	12
Total	113	20	256

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Table 5
Psychology's "Top 100" Terms/Concepts (In Alphabetical Order)

Term	Rating	Subfield	Term	Rating	Subfield
Absolute threshold	4.92	PERC	Hypothesis testing	5.00	METH
Action potential	4.71	BIOL	Id	4.73	PERS
Aggression	4.75	DEVT	Independent variable	5.00	METH
Anxiety	5.00	ABNL	Infant-mother attachment	4.67	DEVT
Anxiety disorder	4.91	ABNL	Information-processing approach	4.50	COGN
Artificial intelligence	4.56	COGN	Instrumental behavior	4.89	BEHV
Associationism	4.83	HIST	Intelligence	4.64	DEVT
Attachment	5.00	DEVT	Intelligence quotient	4.69	HIST
Attitude change, factors influencing	4.76	SOCL	Introversion-extraversion	4.64	PERS
Attitudes and behavior	4.71	SOCL	Just noticeable difference	4.77	PERC
Attribution theory	4.65	SOCL	Law of effect	4.84	BEHV
Avoidance learning	4.79	BEHV	Long-term memory	4.89	COGN
Binocular depth cues	4.77	PERC	Longitudinal research	4.64	DEVT
Central nervous system	4.93	BIOL	Meaning	4.44	COGN
Cerebellum	4.71	BIOL	Mental illness	4.91	ABNL
Cerebral cortex	4.86	BIOL	Mental imagery	4.39	COGN
Cerebral hemispheres	4.86	BIOL	Milgram's obedience experiment	4.59	SOCL
Childhood, characteristics of	4.71	DEVT	Nature-nurture controversy	4.86	DEVT
Classical conditioning	5.00	BEHV	Neocortex	4.71	BIOL
Cognitive development	4.86	DEVT	Neurotransmitter	4.88	BIOL
Cognitive dissonance theory	4.82	SOCL	Normal distribution	5.00	METH
Conditioned stimulus	4.74	BEHV	Operant conditioning	5.00	BEHV
Conditioned reflex	4.94	HIST	<i>Origin of Species</i>	4.79	BEHV
Conformity	4.65	SOCL	Personality	5.00	PERS
Consciousness	4.80	HIST	Phobia	4.82	ABNL
Contrast	4.67	PERC	Placebo effect	4.82	ABNL
Control group	5.00	METH	Positive reinforcement	4.93	BEHV
Correlation coefficient	5.00	METH	Prejudice	4.76	SOCL
Correlational method	4.65	SOCL	Prosocial behavior	4.81	SOCL
Dendrite	4.71	BIOL	Psychoanalytic theory	4.82	PERS
Deoxyribonucleic acid (DNA)	4.71	BIOL	Psychosis	4.91	ABNL
Dependent variable	5.00	METH	Psychosomatic disorders	4.91	ABNL
Depression	4.82	ABNL	Psychotherapy	5.00	ABNL
Depth perception	4.92	PERC	Rehearsal	4.39	COGN
Determinism	4.78	HIST	Reinforcement	5.00	BEHV
Developmental stages, theories of	4.93	DEVT	Right hemisphere	4.71	BIOL
Distance cues	4.69	PERC	Sample	5.00	METH
Ego	5.00	PERS	Semantic memory	4.39	COGN
Electroencephalograph	4.71	BIOL	Serial position function	4.50	COGN
Empiricism	4.78	HIST	Short-term memory	4.61	COGN
Etiology	5.00	ABNL	Significance level	5.00	METH
Evolution and functionalism	4.78	HIST	Significant difference	5.00	METH
Experimental group	5.00	METH	Social influence	4.67	SOCL
Extinction	4.89	BEHV	Socialization	4.93	DEVT
Forgetting curve	4.67	COGN	Socioeconomic status	4.64	DEVT
Free association	4.73	PERS	Traits	4.67	PERS
Free recall	4.50	COGN	Unconscious	4.75	PERS
Frequency (audition)	4.77	PERC	Unconscious motivation	4.67	PERS
Gestalt principles of organization	5.00	PERC	Visual angle	4.69	PERC
Gestalt psychology	4.78	HIST	Visual depth perception	4.75	PERC

Note. PERC = perception; BIOL = biological; DEVT = developmental; ABNL = abnormal; COGN = cognitive; HIST = historical; SOCL = social; BEHV = behavior; METH = methodology; PERS = personality.

Table 6
First 100 Terms/Concepts

Abnormal			Behavior		
Rank	Term	Rating	Rank	Term	Rating
1	Anxiety	5.00	1	Classical conditioning	5.00
2	Etiology	5.00	2	Operant conditioning	5.00
3	Psychotherapy	5.00	3	Reinforcement	5.00
4	Anxiety disorder	4.91	4	Positive reinforcement	4.93
5	Mental illness	4.91	5	Extinction	4.89
6	Psychosomatic disorders	4.91	6	Instrumental behavior	4.89
7	Depression	4.82	7	Punishment	4.84
8	Phobia	4.82	8	Law of effect	4.84
9	Placebo effect	4.82	9	Avoidance learning	4.79
10	Acute schizophrenia	4.73	10	Origin of Species	4.79
11	Affective disorder	4.73	11	Conditioned stimulus	4.74
12	Antisocial personality	4.73	12	Discrimination learning	4.74
13	Ego	4.73	13	Experimental extinction	4.74
14	Primary prevention	4.73	14	Unconditioned response	4.74
15	Defense mechanism	4.64	15	Unconditioned stimulus	4.74
16	Delusion	4.64	16	Contingencies of reinforcement	4.71
17	DSM-III	4.64	17	Reflex	4.64
18	Hallucination	4.64	18	Schedules of reinforcement	4.64
19	Medical model	4.64	19	Behavior modification	4.63
20	Paranoia	4.64	20	Empirical law of effect	4.63
21	Prognosis	4.64	21	Habituation	4.63
22	Symptom	4.64	22	Stimulus generalization	4.58
23	Systematic desensitization	4.55	23	Pavlovian vs. Thorndikean learning	4.58
24	Chronic schizophrenia	4.55	24	Conditioned fear	4.57
25	Desensitization	4.55	25	Homeostasis	4.56
26	Epidemiology	4.55	26	Generalization gradient	4.53
27	Manic-depressive disorder	4.55	27	Stimulus control	4.53
28	Neurosis	4.55	28	Behavior therapy	4.47
29	Paranoid schizophrenia	4.55	29	Conditioned reinforcement	4.47
30	Projection	4.55	30	Response shaping	4.47
31	Psychogenic	4.55	31	Instinct	4.37
32	Syndromes	4.55	32	Partial reinforcement effect	4.37
33	Tranquilizer	4.45	33	Negative transfer	4.29
34	Bipolar disorder	4.45	34	Secondary reinforcement	4.26
35	Compulsion	4.45	35	Deprivation	4.21
36	Multiple personality	4.45	36	Imprinting	4.16
37	Nonreactive therapy	4.45	37	Learning-performance distinction	4.16
38	Obsession	4.45	38	Brain stimulation	4.14
39	Personality disorder	4.45	39	Delay of reinforcement	4.14
40	Case history	4.45	40	Primary reinforcement	4.11
41	Psychosomatic personality	4.45	41	Species-specific behavior	4.11
42	Psychosurgery	4.45	42	Selective attention	4.07
43	Sociopathic personality	4.45	43	Taste-aversion learning	4.05
44	Case history	4.36	44	Thal-and-error learning	4.05
45	Delusional disorders	4.36	45	Spontaneous recovery	4.00
46	Ego-defense mechanism	4.36	46	Animal cognition	4.00
47	Delusional disorders	4.36	47	Skinner box	3.95
48	Ego-defense mechanism	4.36	48	Skinner's radical behaviorism	3.95
49	Electroconvulsive therapy	4.36	49	Continuous reinforcement (CR)	3.93
50	Electroconvulsive therapy	4.36	50	Negative reinforcement	3.93
51	Satiation	3.93	51	Satiation	3.93
52	Autonomic conditioning	3.89	52	Autonomic conditioning	3.89
53	Conditioned emotional response	3.86	53	Conditioned emotional response	3.86
54	Two-factor theory, avoidance learning	3.83	54	Two-factor theory, avoidance learning	3.83
55	Intervening variables	3.79	55	Intervening variables	3.79
56	Biological maps	3.79	56	Biological maps	3.79
57	Cognitive maps	3.79	57	Cognitive maps	3.79
58	Compound stimuli	3.79	58	Compound stimuli	3.79
59	Preparedness	3.74	59	Preparedness	3.74
60	Conditioned inhibition	3.74	60	Conditioned inhibition	3.74
61	Connectionism (neural modeling)	3.74	61	Connectionism (neural modeling)	3.74
62	Experimental analysis of behavior	3.74	62	Experimental analysis of behavior	3.74
63	Learned helplessness	3.74	63	Learned helplessness	3.74
64	Opponent process theory (Solomon)	3.74	64	Opponent process theory (Solomon)	3.74
65	Second-order conditioning	3.71	65	Second-order conditioning	3.71
66	Connectionism (Thorndike)	3.71	66	Connectionism (Thorndike)	3.71
67	Expectancy theory	3.71	67	Expectancy theory	3.71
68	Intertrial interval	3.68	68	Intertrial interval	3.68
69	Neural stimulus (Pavlov)	3.68	69	Neural stimulus (Pavlov)	3.68
70	Selection by consequences	3.67	70	Selection by consequences	3.67
71	Sensitization	3.64	71	Sensitization	3.64
72	SS vs. SR learning	3.63	72	SS vs. SR learning	3.63
73	Successive approximation	3.63	73	Successive approximation	3.63
74	Voluntary-involuntary distinction	3.63	74	Voluntary-involuntary distinction	3.63
75	Insight learning (Köhler)	3.63	75	Insight learning (Köhler)	3.63
76	Blocking	3.63	76	Blocking	3.63
77	Desensitization	3.63	77	Desensitization	3.63
78	The Behavior of Organisms	3.63	78	The Behavior of Organisms	3.63
79	Variable-interval schedule	3.61	79	Variable-interval schedule	3.61
80	Approach-avoidance conflict	3.59	80	Approach-avoidance conflict	3.59
81	Fixed action pattern	3.58	81	Fixed action pattern	3.58
82	Superstitious behavior	3.58	82	Superstitious behavior	3.58
83	Two-process theory of learning	3.57	83	Two-process theory of learning	3.57
84	Animal concept learning	3.57	84	Animal concept learning	3.57
85	Elicitation	3.57	85	Elicitation	3.57
86	Magnitude of reward	3.57	86	Magnitude of reward	3.57
87	Learning competition	3.53	87	Learning competition	3.53
88	Autoshaping	3.53	88	Autoshaping	3.53
89	Behavioral modeling	3.53	89	Behavioral modeling	3.53
90	Garcia-Koelling experiment	3.53	90	Garcia-Koelling experiment	3.53
91	Latent learning	3.53	91	Latent learning	3.53
92	Learning sets	3.53	92	Learning sets	3.53
93	Orienting reflex	3.50	93	Orienting reflex	3.50
94	Conditioned drug tolerance	3.47	94	Conditioned drug tolerance	3.47
95	Circadian rhythms	3.47	95	Circadian rhythms	3.47
96	Conditioned suppression	3.47	96	Conditioned suppression	3.47
97	Fixed ratio schedule	3.47	97	Fixed ratio schedule	3.47
98	Rescoria-Wagner theory	3.44	98	Rescoria-Wagner theory	3.44
99	Exploration	3.43	99	Exploration	3.43
100	Generalization decrement	3.43	100	Generalization decrement	3.43

(table continued)

betical order. Then, in Table 6, the 100 most highly rated terms for each subfield are presented in order of their ranking within the subfield. Whenever ties occur within a subfield, the terms are alphabetized within the set of tied scores.

Afterthoughts

Having done all of this, and having thought continually about the project throughout process, I am hesitant to attribute any profound meaning or hidden implication to these results. My feelings are manifested in the title of the article; this is a first approximation toward identifying a comprehensive and irreducible knowledge base for psychology that could have many desirable consequences.

Yet, even now the message is clear: Here are psychological terms that subfield experts declare to be of sufficient importance that they should be generally known to the psychological community, particularly to students. As a *first approximation* implies, however, there is work yet to be done. I would welcome suggestions about future directions for which this work might serve as a springboard. The problems are certainly well-known. Where do we go from here?

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