

Development and Standardization of PSYCAT: A Psychometric and Cognitive Ability Test & Assessment

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Received Sept 11, 2017

Accepted Oct. 10, 2017

ABSTRACT

The in-hand study was conducted to develop and standardize a multi-dimensional measure of human psychometrics that quantifies and infers the levels of patience, planning, emotional status, tactful behavior, attitude, social intelligence, attitudes, obsessive behavior and intellectual levels of teachers, corporates and individuals. The test and assessment consists of 8 parts. Each part values different dimension of human personality and character. At the initial stage an item pool of 200 items was developed. After item generation, content adequacy assessment was done following which the questionnaire administration was carried onto the sample. Item Scaling was then conducted, then factor analysis, internal consistency assessment and construct validation was carried. Experts of psychology, cognition and education examined these 200 items. After getting result of the ratio analysis, 41 items were discarded from initial draft of the scale. Data were collected from a sample of 2050 working individuals including 1098 males and 952 females selected from different parts of country. Results notified that the test and assessment is reliable and valid tool in measuring psychometrics, specifically the levels of patience, planning, emotional status, tactful behavior, attitude, social intelligence, attitudes, obsessive behavior and intellectual levels of teachers, corporates and individuals. Construct validity was administered and the correlation was found to be positive. PSYCAT hereby has thus emerged and confirmed to be a highly reliable and valid schedule as a psychometric and cognitive ability test & assessment.

Keywords: Intellectual Level, Psychometric, Cognitive Abilities, Teachers, Corporates.

INTRODUCTION

Psychometric and cognitive ability tests are specifically designed to test and assess the human potentials, personality and characteristics. These tests are a standard and scientific method used to measuremental capabilities and behavioural style. Psychometric tests are designed to measure candidates' suitability for a role based on the required personality characteristics, aptitude and cognitive abilities.

PSYCAT is a multi-dimensional measure of human psychometrics that quantifies and infers the levels of patience, planning, emotional status, tactful behavior, attitude, social intelligence, attitudes, obsessive behavior and intellectual levels of teachers, corporates and individuals. The test and assessment consists of 8 parts. Each part values different dimension of human personality and character. The following eight human variables are assessed through it:

Patience Level- Patience is the quality of being patient, as the bearing of provocation, annoyance, misfortune, or pain, without complaint, loss of temper, irritation, or the like, an ability or willingness to suppress restlessness or annoyance when confronted with delay. This is an important human quality.

Planning Level- Planning is the process of thinking about and organizing the activities required to achieve a desired goal. It involves the creation and maintenance of a plan, such as psychological aspects that require conceptual skills. It is a fundamental property of intelligent behavior.

Emotional Level- Emotions involve different components, such as subjective experience, cognitive processes, expressive behavior, psychophysiological changes, and instrumental behavior. Emotional stability is required for a successful life.

Tactful- Tactful refers to the ability of having or showing skill and sensitivity in dealing with others or with difficult issues.

Attitude- Attitude is an acquired or predisposed mental state regarding an object with some degree of positivity or negativity which is perceived from a social or personal stimuli.

Social Intelligence- Social Intelligence is the ability to get along well with others, and to get them to cooperate with you. Higher social intelligence would lead to better adjustments and life skills.

Obsessive- Obsession refers to an idea or thought that continually preoccupies or intrudes on a person's mind. In practical life, higher obsessive behaviour may lead to concerns and issues in one's life.

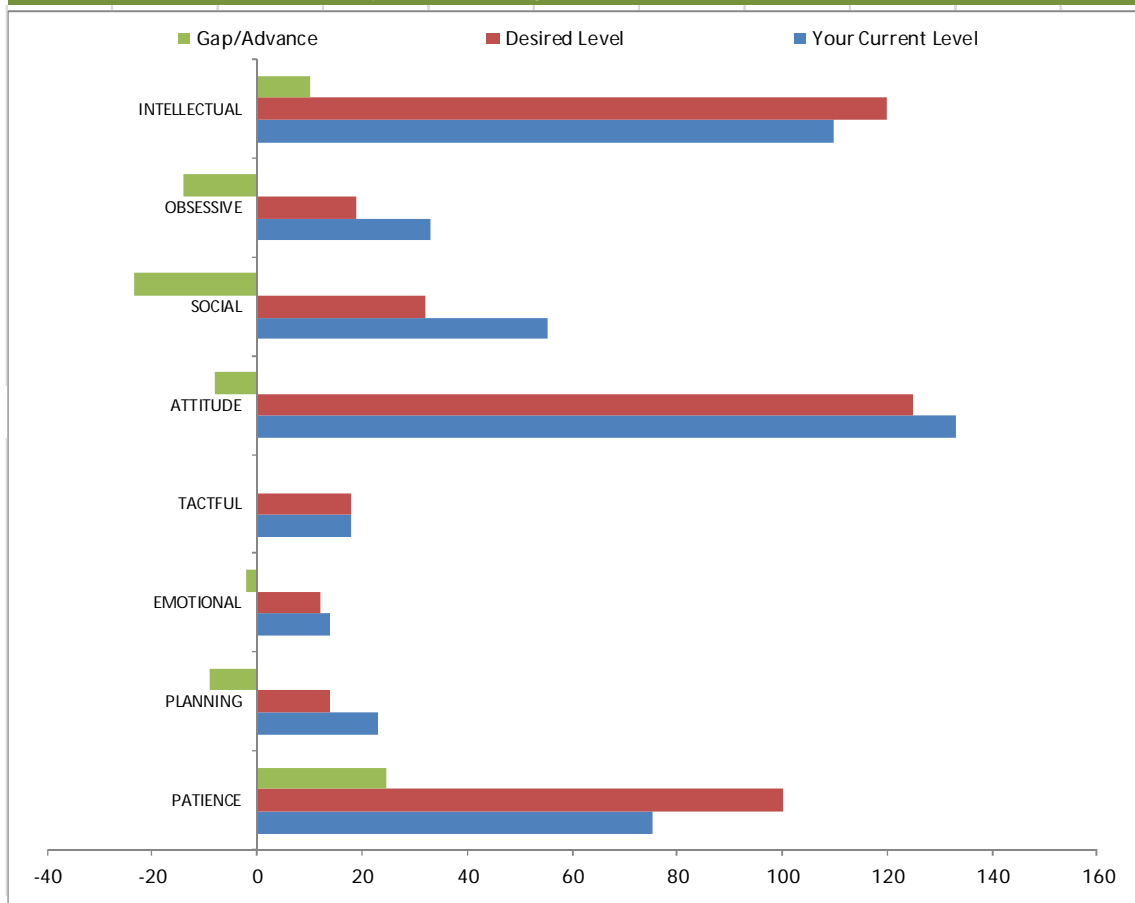
Intellectual Level- An intellectual is a person who engages in critical thinking, research, and reflection about society and proposes solutions for its normative problems.

PSYCAT analysis

Standardized by CRACS (Centre for Research in Applied Cognitive Sciences)

Unique ID	Organization-333-126	Organization Name
Emp Name	Haardik	MLT
Working as	Manager	Oct-2017
Age	25 Years	

Psychometric & Cognitive Cumulative ScoreCard



CRACS Grade

B-

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Result Analysis & Interpretation does not infer with the results provided by clinical psychologists or any other psychological testing process. Scores are indicators for internal counseling process. For standardization reports visit cracslab.com/research

METHODOLOGY

In order to develop a reliable and valid measurement tool, initially an item pool of 200 items was developed. After item generation, content adequacy assessment was done following which the questionnaire administration was carried onto the sample. Item Scaling was then conducted, then factor analysis, internal consistency assessment and construct validation was carried. Experts of psychology, cognition and education examined these 200 items. After getting result of the ratio analysis, 41 items were discarded from initial draft of the scale. Data were collected from a sample of 2050 working-individuals including 1098 males and 952 females selected from different parts of country. The data were collected and analyzed over a period of 2 years under research carried on by the author for the said study.

PSYCAT Validity

The internal validity of a test is the extent to which it measures what it is supposed to measure. The external validity of a test refers to how well it can be generalized to others in the population for which it was developed. There are 3 additional criteria or types of evidence for test validity: construct, content, and criterion validity. Construct validity refers to the association of the test with an underlying theory. It confirms that the test produces a result that is in accord with an established theory. Content validity referred to as face validity which notifies that the test seems to measure what it is supposed to measure and that its content makes sense. Criterion validity portrays that the test results match up with other known measures of a characteristics. There are two types of criterion validity: concurrent and predictive. Concurrent validity explains that when a test result is compared with another established indicator at the same time, and if both scales give the same result, then the newer one possesses criterion validity. It is valid because it gives the same result as a known criterion which is already standardized. Predictive validity confirms that the test result predicts a later outcome. In this context.

PSYCAT Reliability

The reliability of a test refers to stability of measurement over time. When a person's data entry skills are measured on two occasions with no special training in between, the two sets of scores should be similar. Reliability was measured with a reliability coefficient, which refers to a correlation between sets of scores from people who have been given the test on two occasions. Further, reliability of PSYCAT was ascertained through test-retest method, split-half method, and alternate forms' method. Parts-A, B, C & D were checked for reliability through split-half, after the test was taken by the sample, the responses were divided into two halves specifically, the odd-numbered and the even-numbered items. Scores on each half were correlated. A high positive reliability coefficient was recorded for the two halves making the test reliable. For parts-E, F, G & H the test-retest method was followed in which the same test was given to the same people on two occasions. The scores are correlated, and the reliability coefficient was found to be highly positive.

Sample Size

The data was collected from a significant sample of 2050 working-individuals including 1098 males and 952 female selected to appropriately conduct subsequent analyses.

Table: 1 Value of Corrected-Item Correlation

Item No	Value of Item Correlation	Item No	Value of Item Correlation	Item No	Value of Item Correlation	Item No	Value of Item Correlation
1	0.31	19	0.54	38	0.53	56	0.36
2	0.32	21	0.16	39	0.26	57	0.39
3	0.38	22	0.54	40	0.38	58	0.13
4	0.38	23	0.58	41	0.20	59	0.10
5	0.38	24	0.50	42	0.33	60	0.08
6	0.39	25	0.49	43	0.23	61	0.06
7	0.33	26	0.36	44	0.31	62	0.27
8	0.34	27	0.66	45	0.32	63	0.06
9	0.27	28	0.36	46	0.38	64	0.16
10	0.19	29	0.35	47	0.29	65	0.14
11	0.33	30	0.36	48	0.34	66	0.11
12	0.33	31	0.60	49	0.30	67	0.09
13	0.33	32	0.26	50	0.32	68	0.41
14	0.36	33	0.31	51	0.24	69	0.36
15	0.54	34	0.32	52	0.54	70	0.32
16	0.53	35	0.38	53	0.58	71	0.28
17	0.47	36	0.43	54	0.50	72	0.10
18	0.25	37	0.53	55	0.49	73	0.07

Item No	Value of Item Correlation	Item No	Value of Item Correlation	Item No	Value of Item Correlation	Item No	Value of Item Correlation
74	0.16	108	0.52	142	0.31	176	0.33
75	0.20	109	0.31	143	0.23	177	0.33
76	0.11	110	0.41	144	0.22	178	0.40
77	0.10	111	0.39	145	0.77	179	0.40
78	0.66	112	0.36	146	0.81	181	0.43
79	0.70	113	0.34	147	0.73	182	0.60
80	0.62	114	0.66	148	0.72	180	0.40
81	0.60	115	0.62	149	0.59	183	0.59
82	0.48	116	0.57	150	0.62	184	0.58
83	0.50	117	0.53	151	0.59	185	0.57
84	0.48	118	0.35	152	0.57	186	0.56
85	0.46	119	0.32	153	0.55	188	0.54
86	0.44	120	0.40	154	0.76	189	0.53
87	0.65	121	0.44	155	0.55	187	0.55
88	0.44	122	0.35	156	0.65	190	0.65
89	0.53	123	0.34	157	0.63	191	0.56
90	0.51	124	0.46	158	0.60	192	0.55
91	0.49	125	0.68	159	0.58	193	0.42
92	0.47	126	0.22	160	0.90	194	0.72
93	0.78	127	0.20	161	0.86	195	0.43
94	0.74	128	0.18	162	0.81	196	0.42
95	0.70	129	0.39	163	0.77	197	0.43
96	0.66	130	0.18	164	0.59	198	0.67
97	0.48	131	0.27	165	0.56	199	0.32
98	0.45	132	0.25	166	0.65	200	0.38
99	0.53	133	0.23	167	0.69		
100	0.57	134	0.21	168	0.38		
101	0.49	135	0.52	169	0.39		
102	0.48	136	0.48	170	0.44		
103	0.34	137	0.44	171	0.44		
104	0.38	138	0.40	172	0.44		
105	0.35	139	0.22	173	0.45		
106	0.33	140	0.19	174	0.39		
107	0.31	141	0.27	175	0.41		

CONCLUSION

Through a notifying concern, the study came out with significant results as the correlation coefficient was found to be significantly high witnessing the high reliability and validity of the test. The study came out with significant outputs as the correlation coefficient was found to be significantly high witnessing the high validity and reliability of the test. Results indicated that PSYCAT is reliable and valid tool in measuring psychometrics. The study aided in the development & standardization of a reliable and valid tool and therefore the objective of the research were achieved as a product intended to provide an insight into those scientific methodologies that can help to measure psychometrics, specifically the levels of patience,

planning, emotional status, tactful behavior, attitude, social intelligence, attitude, obsessive behavior and intellectual levels of teachers, corporates and individuals.

ACKNOWLEDGEMENT

Author expresses indebtedness to the Almighty, who is the apostle of strength. Genuine thanks are expressed to all the authors/ researches whose work is referred for making the present study a real success. Author is inevitably grateful to all the respondents and all those, directly as well as indirectly involved in the auspicious research work.

BIBLIOGRAPHY

1. AERA, APA, & NCME. (1999). Standards for educational and psychological testing. Washington DC: American Educational Research Association.
2. Bennett, R. E. (2011). Formative assessment: a critical review. *Assessment in Education: Principles, Policy & Practice*, 18(1), 5–25.
3. Bloom, B. S. & Krathwohl, D. R. (1956). Taxonomy of educational objectives: the classification of educational goals. handbook i: cognitive domain.
4. Bond, L. A. (1996). Norm- and criterion-referenced testing. *Practical Assessment Research & Evaluation*, 5(2).
5. Brennan, R. L. (2013). Commentary on "Validating the Interpretations and Uses of Test Scores". *Journal of Educational Measurement*, 50, 74–83.
6. Cronbach, L. J. & Shavelson, R. J. (2004). My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement*, 64, 391–418.
7. Garrelt, J. H. E. (1985), *Statistics in Psychology and Education*; Vakils, (Bombay :Feffer and Simons Pvt. Ltd.)
8. Haladyna, T. M. & Downing, S. M. (1989). A taxonomy of multiple-choice item-writing rules. *Applied Measurement in Education*, 2, 37–50.
9. Haladyna, T. M. & Rodriguez, M. C. (2013). *Developing and validating test items*. New York, NY: Routledge.
10. Haladyna, T. M., Downing, S. M., & Rodriguez, M. C. (2002). A review of multiple-choice item-writing guidelines for classroom assessment. *Applied Measurement in Education*, 15, 309–334.
11. Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content validity in psychological assessment: a functional approach to concepts and methods. *Psychological Assessment*, 7, 238–247.
12. Kane, M. T. (2013). Validating the interpretations and uses of test scores. *Journal of Educational Measurement*, 50, 1–73.
13. Kothari R. C. (2009), *Research Methodology, Method and Techniques*, (New Delhi : New Age International (P) Ltd.)
14. Maris, Gunter; and et. al. (2012), "Speed-Accuracy Response Models : Scoring Rules Based on Response Time and Accuracy"
15. Mukharji M. (1966), "Construction and Standardization of Various Aptitude Test" (Unpublished Ph.D. thesis, Kolkata University)
16. Popham, W. J. & Husek, T. R. (1969). Implications of criterion-referenced measurement. *Journal of Educational Measurement*, 6, 1–9.
17. Rodriguez, M. C. (2005). Three options are optimal for multiple-choice items: a meta-analysis of 80 years of research. *Educational Measurement: Issues and Practice*, 24, 3–13.
18. Rulon, P. J. A. (1939), *Simplified procedure for determining the reliability of a test by split-halves theory*, Edu.
19. Sharma R. S. (1984), "Performance on Ability / Aptitude Tests – A Study of the Effect of Practice and Some Demographic Variables"