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Construction and Standardization of Achievement Test: Achievement of B.Ed. Pupil Teachers in Educational Psychology

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Abstract

An achievement test evaluates student progress and learning objectives. The main aim of the present research work was to construct and standardised an Achievement Test (EPAT) in Educational Psychology for measuring the achievement of four major concepts (Learning, Intelligence, Personality, and Creativity) of the educational psychology of B.Ed. pupil teachers. The first draft of the Achievement Test of Educational Psychology consists of 120 multiple-choice questions (MCQs) with four options. The first draft was reviewed by various subject experts. The reviewed and corrected first draft of the Achievement Test of Educational Psychology was administered on 200 B.Ed. pupil teachers from different institutions for primary try out and calculating various statistical values. Item analysis was performed and feedback obtained from item analysis led to the item deletion, modification, and item replacement. The face and content validity of the Achievement Test of Educational Psychology were determined with the help of ten teacher-educators. The split-half reliability method (Spearman-Brown Prophecy Formula) was used to determine the reliability of the Achievement Test of Educational Psychology. The quantitative data were collected with the help of the final draft of the Education Psychology Achievement Test by the administration on a representative sample of 384

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B.Ed. pupil teachers and the norms for the test were determined with the help of standard score norms (Z-scores) and percentile rank norms. The Construction and standardization procedure of the Achievement Test of Educational Psychology is described in the present paper in detail.

Keywords: Educational psychology, achievement test, standardization

Introduction

Assessments of academic achievement is extremely important in a variety of professions, including education, psychology, and others. Achievement tests are intended to evaluate an individual's knowledge, abilities, or competencies in a particular subject (Singh, & Sharma, 2024). The purpose of this in-depth investigation is to delve into the complexities of achievement exams, including information on their definition, types, design, and interpretation. When educators, psychologists, and researchers have a thorough understanding of these aspects, they can successfully utilize achievement tests to evaluate performance, direct training, and provide information that can inform decision-making. Achievement tests are standardized tools that are given to individuals to determine the amount of knowledge, skills, or abilities that certain individuals possess in a specific subject or domain (Patel & Singh, 2018; Arslan & Ari, 2024). They are frequently utilized in educational settings to assess the level of comprehension that pupils have regarding academic disciplines such as mathematics, language, science, and social studies.

Achievement is defined as the capacity to accomplish a task or skill with mastery or proficiency (Chaudhary & Tyagi, 2017; Bala, Bunkure & Zayum, 2024). It is a representation of an individual's mastery of a certain context or field of knowledge to the extent that they have achieved it. It is important that the instrument that is utilized to evaluate the achievements of an individual be authentic, dependable, and objective. The purpose of achievement assessment is to evaluate the level of knowledge and skill that students possess about a specific subject (Gangwar & Singh, 2019). According to Freeman (2018), "a test of educational achievement is designed to measure knowledge, understanding or skills in a particular subject or group of subjects." According to the psychologist Ebel & Frisbie (1991), "achievement test is a design which measures the knowledge, skill or ability acquired by the student." Achievement tests attempt to measure what an individual has learned—his or her present level of performance. They are particularly helpful in determining individual or group status in academic leaning. Achievement test scores are used in placing, advancing or retaining students at particularly level (Best, Kahn & Jha, 2016). It is possible to assert that the term "Achievement test" refers to examinations of this kind, which are designed to evaluate an individual's level of expertise in a specific domain following a specific amount of time

spent in training (Lalhruaitluangi & Kaur, 2024). In addition to assessing the level of knowledge in a variety of areas, these examinations also provide the instructor with the opportunity to determine the degree to which he has been successful in his teaching. In this research work, Achievement in Educational Psychology shows the results achieved by B.Ed. pupil teachers on the test based on the selected concepts (Learning, Intelligence, Personality, and Creativity) of the Educational Psychology course of B.Ed. program.

Research Methodology

This study was conducted to construct and standardize an achievement test for B.Ed. pupil teachers to measure their achievement in four major concepts (Learning, Intelligence, Personality, and Creativity) in educational psychology. Three districts (Moradabad, Bareilly and Lucknow) from of Uttar Pradesh and two districts (Gaya and Purnia) from Bihar were selected as the locale of the study. Quantitative approach was adopted as research approach and survey method (cross-sectional survey design) was used to collect the necessary data. A sample of 200 B.Ed. pupil teachers of 14 teacher education institutions was selected by using purposive sampling technique. The first draft of the Achievement Test of Educational Psychology consists of 120 multiple-choice questions (MCQs) with four options. was used to collect data and calculating various statistical values. After it the quantitative data were collected with the help of the final draft of the Education Psychology Achievement Test by the administration on a representative sample of 384 B.Ed. pupil teachers of 19 teacher education institutions from above maintained five district was selected with the help of purposive sampling technique and the norms for the test were determined The Construction and standardization procedure of the Achievement Test of Educational Psychology is described in the present study in detail.

Results and Discussion

The Steps Followed in the Test Construction and Standardization

The Construction and standardization of achievement test involved five major steps namely planning, construction, evaluation, validation and Determination of norms (Chaudhary & Tyagi, 2017; Singh, 2019).

Step I – Planning

Step II – Construction: Preparing Test Items

Step III – Evaluation of Items: Qualitative and Quantitative

Step IV – Validation: Reliability and Validity of Achievement Test of Educational Psychology

Step V– Determination of Norms

Step I – Planning

While constructing any test, the researcher should keep in mind whom, what, when, and how will be assessed by the test. Keeping these facts in mind, the researcher can construct a perfect test. The first step for the construction of the Achievement Test of Educational Psychology included the following sub-steps:

- i. Defining Test Universe and Test Purpose
- ii. Defining the Construct and Content to be Measured
- iii. Preparing the Blueprint of the Achievement Test

i. Defining Test Universe and Test Purpose

Keeping in mind the purpose of defining the target group, the objectives of administering the test, and the characteristics of the members of the target group, the researchers selected B.Ed. pupil teachers as the test universe.

ii. Defining the Construct and Content to be Measured

In this research, the researchers selected the understanding, applying, and analyzing aspects of the cognitive domain and constructed the items of the achievement test according to these aspects with the help of the principles of test construction.

iii. Preparing the Blueprint of the Achievement Test

The blueprint of any test presents a detailed outline of that test. By looking at the blueprint of any test, the objective of that test, the items included in it, and the distribution of these items according to the levels of the domain of knowledge can be easily understood. In the present research work, the researchers made a detailed study of the syllabus to be included in the test-created items based on the cognitive domain, and distributed them according to understanding, applying, and analyzing level. The detail of the first draft of the blueprint of the achievement test is given in Table 1.

Step II – Construction: Preparing Test Items

To know the achievement of students in any subject, researchers often developed standardized tests based on multiple-choice questions under objective type tests. Multiple-choice questions work well, can do a difference between people, and can be mixed with other testing methods (Bennett, Rock, & Wang, 1991; San Martín-Rodríguez and et.al. 2005). The researcher constructed a 120-question multiple-choice question (MCQ) in this step. The detail of the first draft of the items constructed in this stage is presented in Table 1.

Table 1*Blueprint of the Achievement Test (First Draft): Objective Wise Distribution*

S. No.	Content	Understanding	Applying	Analyzing	Total
1	Learning	15 (50%)	07 (23%)	08 (27%)	30 (25%)
2	Intelligence	15 (50%)	07 (23%)	08 (27%)	30 (25%)
3	Personality	15 (50%)	07 (23%)	08 (27%)	30 (25%)
4	Creativity	15 (50%)	07 (23%)	08 (27%)	30 (25%)
	Total	60 (50%)	28 (23%)	32 (27%)	120 (100%)

Step III – Evaluation of Items: Qualitative and Quantitative**i. Qualitative Evaluation of Items by Subject Experts**

For qualitative evaluation of the items included in the achievement test, the help of ten teacher educators working in various universities, colleges, and institutes was taken. For this, these teacher educators were requested to read each item of the achievement test and give suggestions for improving its quality. In light of the suggestions of teacher educators, the language, sentence structure, syntax, and options of various items of the achievement test were amended and refined. After this, the pilot study was conducted for quantitative evaluation of the items included in the achievement test.

ii. Quantitative Evaluation: Pilot Study

The first draft of the achievement test was administered on 200 B.Ed. pupil teachers from various universities for a pilot study. The first draft of the Achievement test consisted of 120 multiple-choice questions with four possible answers (A, B, C, or D) for each question. The respondents were requested to read each question and give their response on one of the four options related to it. The time duration for response was decided at two hours. A scoring key was used to assist in the scoring process. On each item, the respondent was given one mark for the correct response and zero marks for the wrong response. Zero marks were also given to not attempted items. The range of scores of the first draft was 0–120, and there was no negative marking. After scoring, item analysis was done with the help of obtained scores. Item analysis involves an examination of the pattern of responses for each item to assess effectiveness. The item analysis was done in the following manner:

iii. Item Analysis: Difficulty Value

The difficulty value of an item is indicated by the letter *P*. The proportion of responders who correctly answer a given item is known as the difficulty value of the item or item difficulty. The *P* value of an item gives precise information about how simple or complex the item was for the respondents. The range of the difficulty value is 0.00 to +1.00 (Singh, 2019). The following formula was used to determine the difficulty value:

$$P = R / N$$

Here,

P= Difficulty value of item

R= Number of persons who answered correctly

N= Number of persons

Items in the range of 0.20 to 0.80 should be chosen for a multiple-choice test with four or more options (Brown, 1983). The Items whose difficulty value was 0.20 to 0.80 were selected in this achievement test. Items deemed excessively simple or complex were eliminated.

iv. Discrimination Power

Discrimination power (DP or V) refers to the degree to which an item differentiates correctly among test takers in the behaviour that the test is designed to measure (Anastasi & Urbina, 2024). The discrimination power was estimated using the following formula:

$$V = (R_U - R_L) / N_U$$

Here,

V= Discriminative power of Item,

R_U = Number of persons giving correct answers in the upper group

R_L = Number of persons giving correct answers in lower group

N_U = Total number of persons in the upper group

The researcher calculated the discrimination power by grouping the 200 response sheets in descending score order. For statistical analysis, the upper 27% (top 54 person) and lower 27% (bottom 54 person) of the response sheets were used. The discrimination power of each item was calculated with the help of the formula given above. Those items whose discrimination power was less than 0.20 were not included in the test (Ebel & Frisbie, 1991) gave the following recommendations for assessing an item's quality using the discrimination power. Table 2 shows the values of discrimination power (DP) and their corresponding interpretation for the selection or rejection of an item.

Table 2

Discrimination Power

Index Of Discrimination	Item Evaluation
0.40 and up	Very good items
0.30-0.39	Reasonably good but possibly subject to improve
0.20-0.29	Marginal items, usually needing and being subject to improvement
Below 0.19	Poor items, to be rejected or improved by revision

Table 3*Item Analysis: Item Difficulty Value and Item Discrimination Power*

Item No.	Score	Difficulty Value (P= Score/200)	Correct Responses of Upper Group (R_U)	Correct Responses of Lower Group (R_L)	Difference ($R_U - R_L$)	Discrimination Power (DP or V)	Item Decision
1	105	0.53	37	23	14	0.26	Selected
2	91	0.46	29	22	7	0.13	<i>Rejected</i>
3	94	0.47	26	23	3	0.06	<i>Rejected</i>
4	104	0.52	34	22	12	0.22	Selected
5	88	0.44	23	16	7	0.13	<i>Rejected</i>
6	83	0.42	30	16	14	0.26	Selected
7	100	0.50	29	23	06	0.11	<i>Rejected</i>
8	78	0.39	24	17	07	0.13	<i>Rejected</i>
9	103	0.52	35	21	14	0.26	Selected
10	87	0.44	23	16	07	0.13	<i>Rejected</i>
11	95	0.48	29	22	07	0.13	<i>Rejected</i>
12	98	0.49	30	23	07	0.13	<i>Rejected</i>
13	87	0.44	28	13	15	0.28	Selected
14	93	0.47	30	18	12	0.22	Selected
15	94	0.47	29	11	18	0.33	Selected
16	93	0.47	35	18	17	0.31	Selected
17	100	0.50	35	15	20	0.37	Selected
18	90	0.45	32	15	17	0.31	Selected
19	94	0.47	28	13	15	0.28	Selected
20	80	0.40	25	12	13	0.24	Selected
21	90	0.45	28	12	16	0.30	Selected
22	85	0.43	23	24	-01	-0.02	<i>Rejected</i>
23	107	0.54	31	25	06	0.11	<i>Rejected</i>
24	93	0.47	29	24	05	0.09	<i>Rejected</i>
25	90	0.45	32	18	14	0.26	Selected
26	100	0.50	32	20	12	0.22	Selected
27	88	0.44	29	22	07	0.13	<i>Rejected</i>
28	96	0.48	27	27	00	0.00	<i>Rejected</i>
29	99	0.50	31	24	07	0.13	<i>Rejected</i>
30	101	0.51	32	20	12	0.22	Selected
31	98	0.49	36	16	20	0.37	Selected
32	92	0.46	26	19	07	0.13	<i>Rejected</i>

33	93	0.47	34	18	16	0.30	Selected
34	99	0.50	35	23	12	0.22	Selected
35	89	0.45	30	14	16	0.30	Selected
36	79	0.40	17	20	-03	-0.06	Rejected
37	96	0.48	37	22	15	0.28	Selected
38	100	0.50	35	23	12	0.22	Selected
39	94	0.47	33	20	13	0.24	Selected
40	94	0.47	32	18	14	0.26	Selected
41	94	0.47	33	13	20	0.37	Selected
42	82	0.41	20	21	-01	-0.02	Rejected
43	90	0.45	24	17	07	0.13	Rejected
44	97	0.49	35	20	15	0.28	Selected
45	93	0.47	33	19	14	0.26	Selected
46	91	0.46	28	16	12	0.22	Selected
47	99	0.50	31	13	18	0.33	Selected
48	85	0.43	31	11	20	0.37	Selected
49	94	0.47	27	20	07	0.13	Rejected
50	93	0.47	31	15	16	0.30	Accepted
51	87	0.44	26	19	07	0.13	Rejected
52	90	0.45	31	18	13	0.24	Selected
53	94	0.47	35	12	23	0.43	Selected
54	93	0.47	31	24	07	0.13	Rejected
55	85	0.43	27	20	07	0.13	Rejected
56	85	0.43	28	21	07	0.13	Rejected
57	106	0.53	37	22	15	0.28	Selected
58	94	0.47	32	18	14	0.26	Selected
59	89	0.45	21	18	03	0.06	Rejected
60	92	0.46	26	22	04	0.07	Rejected
61	96	0.48	30	23	07	0.13	Rejected
62	81	0.41	27	14	13	0.24	Selected
63	87	0.44	27	13	14	0.26	Selected
64	86	0.43	24	17	07	0.13	Rejected
65	93	0.47	33	19	14	0.26	Selected
66	91	0.46	35	10	25	0.46	Selected
67	106	0.53	30	24	06	0.11	Rejected
68	87	0.44	21	14	07	0.13	Rejected
69	87	0.44	30	15	15	0.28	Selected

70	87	0.44	34	19	15	0.28	Selected
71	87	0.44	27	20	07	0.13	Rejected
72	95	0.48	35	18	17	0.31	Selected
73	83	0.42	27	15	12	0.22	Selected
74	90	0.45	31	18	13	0.24	Selected
75	91	0.46	26	14	12	0.22	Selected
76	87	0.44	31	12	19	0.35	Selected
77	84	0.42	27	15	12	0.22	Selected
78	95	0.48	33	18	15	0.28	Selected
79	88	0.44	32	12	20	0.37	Selected
80	94	0.47	32	13	19	0.35	Selected
81	86	0.43	30	23	07	0.13	Rejected
82	94	0.47	32	20	12	0.22	Selected
83	96	0.48	28	21	07	0.13	Rejected
84	102	0.51	30	23	07	0.13	Rejected
85	93	0.47	26	23	03	0.06	Rejected
86	89	0.45	29	22	07	0.13	Rejected
87	87	0.44	29	15	14	0.26	Selected
88	93	0.47	26	20	06	0.11	Rejected
89	93	0.47	28	21	07	0.13	Rejected
90	95	0.48	22	21	01	0.02	Rejected
91	97	0.49	24	27	-03	-0.06	Rejected
92	95	0.48	27	20	07	0.13	Rejected
93	101	0.51	28	24	04	0.07	Rejected
94	91	0.46	26	19	07	0.13	Rejected
95	92	0.46	26	21	05	0.09	Rejected
96	97	0.49	29	25	04	0.07	Rejected
97	95	0.48	30	18	12	0.22	Selected
98	103	0.52	31	24	07	0.13	Rejected
99	83	0.42	28	21	07	0.13	Rejected
100	100	0.50	27	27	00	0.00	Rejected
101	96	0.48	33	20	13	0.24	Selected
102	84	0.42	26	22	04	0.07	Rejected
103	100	0.50	32	25	07	0.13	Rejected
104	95	0.48	26	27	-01	-0.02	Rejected
105	91	0.46	28	21	07	0.13	Rejected
106	100	0.50	32	26	06	0.11	Rejected

107	107	0.54	31	24	07	0.13	<i>Rejected</i>
108	99	0.50	30	25	05	0.09	<i>Rejected</i>
109	101	0.51	27	26	01	0.02	<i>Rejected</i>
110	91	0.46	35	17	18	0.33	Selected
111	91	0.46	23	23	00	0.00	<i>Rejected</i>
112	98	0.49	32	25	07	0.13	<i>Rejected</i>
113	95	0.48	27	20	07	0.13	<i>Rejected</i>
114	97	0.49	29	23	06	0.11	<i>Rejected</i>
115	92	0.46	34	20	14	0.26	Selected
116	83	0.42	26	23	03	0.06	<i>Rejected</i>
117	96	0.48	28	28	00	0.00	<i>Rejected</i>
118	94	0.47	27	20	07	0.13	<i>Rejected</i>
119	108	0.54	29	22	07	0.13	<i>Rejected</i>
120	90	0.45	25	18	07	0.13	<i>Rejected</i>

Step IV – Validation: Reliability and Validity of Achievement Test of Educational Psychology

Reliability of Achievement Test of Educational Psychology

Reliability is an essential quality of any test. In a simple sense, reliability refers to the precision of test scores. The degree of consistency among test scores is called reliability. The higher the reliability of a test, the more likely it is to be administered again to obtain relevant scores (Singh, 2019). The split-half reliability method was used by the researchers to determine the reliability (Internal Consistency Coefficient by Internal Consistency Method) of this achievement test. In this method, half-test reliability was calculated using the first-half versus second-half technique. Then based on half-test reliability, the reliability of the entire test was determined by Spearman-Brown Prophecy Formula. The value of the reliability coefficient for this test was obtained as 0.89. This value of the reliability coefficient shows high reliability characteristic of the achievement test.

Validity of Achievement Test of Educational Psychology

The validity of a test concerns what the test measures and how well it does so (Anastasi & Urbina, 2024). The face validity and content validity of the ‘Achievement Test of Educational Psychology’ were determined with the help of ten teacher-educators (subject experts) working in various colleges, universities, and institutes. Face Validity refers not to what the test is measuring, but to what the test appears to measure (Singh, 2019). Content validity involves essentially the systematic examination of the test content to determine whether it covers a representative sample of the behavior domain to be measured (Anastasi & Urbina, 2024). Based on expert opinion, it was ensured that all

the items of the test were highly correlated with the predefined four concepts (Learning, Intelligence, Personality, and Creativity) of Educational Psychology of B.Ed. Program.

Final Draft of Achievement Test

After item analysis of 120 items, only 56 items could meet the criteria of DV and DP, hence a total of 56 items were included in the final test. The objective-wise distribution of the items included in the Achievement Test of Educational Psychology is presented in Table 4. Due to giving one mark for the correct response on each item, zero mark for the wrong response, zero mark for the unanswered item and there was no negative marking. Hence the range of scores for this Achievement Test was 00- 56.

Table 4

Final Draft of Achievement Test of Educational Psychology

S. No.	Content	Understanding	Applying	Analyzing	Total
1	Learning	07 (44%) 01, 04, 06, 09, 13, 14, 15	06 (37%) 16, 17, 18, 19, 20, 21	03 (19%) 25, 26, 30	16 (29%)
2	Intelligence	11 (58%) 31, 33, 34, 35, 37, 38, 39, 40, 41, 44, 45	05 (26%) 46, 47, 48, 50, 52	03 (16%) 53, 57, 58	19 (34%)
3	Personality	10 (59%) 62, 63, 65, 66, 69, 70, 72, 73, 74, 75	06 (35%) 76, 77, 78, 79, 80, 82	01 (06%) 87	17 (30%)
4	Creativity	02 (50%) 97, 101	01 (25%) 110	01 (25%) 115	01 (07%)
	Total	30 (54%)	18 (32 %)	08 (14%)	56 (100%)

Step V– Determination of Norms

Norms are sets of scores based on the test results of an external reference or standardization group, that is, persons who take the test for the express purpose of providing comparative data for interpretation (Miller, Lovler & McIntire, 2015).

In the present research, a representative sample of 384 B.Ed. pupil teachers were selected to determine the norms of the Education Psychology Achievement Test. Quantitative data were collected by administering the final version of the Education Psychology Achievement Test on the selected sample. The norms of the test were determined with the help of the collected data.

Lyman (1998) has given four types (Age norms, Grade norms, Percentile norms, and Standard score norms) of norms based on the nature of the scores. Deupa and Deupa (2023) used z-score norms and percentile norms to interpret the results of the attitude

scale, which they had constructed and standardized. They developed seven categories (Extremely favourable, highly favourable, favourable, neutral, unfavourable, highly unfavourable and extremely unfavourable) for z-score norms and five categories (Highly favourable, favourable, neutral, unfavourable and highly unfavourable) for percentile norms. The norms for the scores of the achievement test developed in the present research work were determined with the help of Standard Score Norms (Z-Score), Percentile Rank Norms and Stanine (Standard Nine) Scores.

The Z-score explains the position of a score about the mean and takes the standard deviation as the unit of measurement. The mean of the Z-score is zero, and the standard deviation is one. The positive sign of the Z-score indicates that the original score is greater than the mean, and the negative sign indicates that the original score is less than the mean (Gupta & Gupta, 2018). Percentile rank norms are norms that are expressed in percentile rank. Percentile rank norms are norms that tell what percentage of cases are below the given score (Singh, 2019). A stanine score is a way to scale test scores on a nine-point standard scale. The stanine technique transforms each test result from the original score into a value ranging from 1 to 9. The stanine scale is centered around a mean of five and has a standard deviation of two. A stanine score of 1, 2, or 3 falls below the average; scores of 4, 5, or 6 are considered average; and scores of 7, 8, or 9 exceed the average.

The norms for the scores obtained on the Achievement Test of Educational Psychology were determined in all the above ways. Whose detailed description is present in the following Table 5.

Table 5

Raw Score, Z-score, Percentile Rank and Stanine Scores of Achievement Test of Educational Psychology

Range of Raw Scores	Z or σ Scores Limits	Range of Percentiles	Stanine	Remark
54-56	+1.75 σ to +3.00 σ	96.00- 100.00	9	(7-9) High Achiever
50-53	+1.25 σ to +1.75 σ	89.45-95.99	8	
44-49	+0.75 σ to +1.25 σ	77.35-89.44	7	
38-43	+0.25 σ to +0.75 σ	59.88-77.34	6	(4-6) Average Achiever
32-37	-0.25 σ to +0.25 σ	40.14-59.87	5	
26-31	-0.75 σ to -0.25 σ	22.67-40.13	4	
19-25	-1.25 σ to -0.75 σ	10.57-22.66	3	(1-3) Low Achiever

13-18	-1.75 σ to -1.25 σ	4.02-10.56	2
0-12	-3.00 σ to -1.75 σ	0.00-4.01	1

In table 5, the norms developed with the help of raw scores obtained on the achievement test have been described. In the future, if any other researcher uses this achievement test in his research, he will be able to explain the results scientifically and logically according to these developed norms. It is clear from the observation of table number 5 that all the pupil teachers obtaining 44-56 raw scores (stanine 7-9) will be placed in the category of the high achiever in Educational Psychology, all the pupil teachers obtaining 26-43 original marks (stanine 4-6) will be placed in the category of average achiever in Educational Psychology, and all the pupil teachers obtaining 0-25 original marks (stanine 1-3) will be placed in the category of low achiever in Educational Psychology.

Conclusion

In this research paper, the process of construction and standardization of achievement test has been described in detail. An achievement test of educational psychology comprising 56 items has been designed for B.Ed. pupil teachers to measure their achievement in four major concepts of educational psychology. Diverse sample was used to reduce the geographical and cultural effects. Test was constructed by subjecting it under the steps of test standardized procedure. Reliability and validity of the test were established by split-half method and subject expert judgement respectively. The value of the reliability coefficient for this test was obtained as 0.89 which ensure the high reliability of the test. All 56 items are also categorized in four major concepts as well as cognitive domain. Three types of norms: Z-score, Percentile Rank and Stanine Scores with interpretation categories were developed to interpret the results of achievement test. The researchers can use this achievement test to measure the achievement of B.Ed. pupil teachers in educational psychology. This achievement test will prove beneficial for various stakeholders associated with teacher education. In this research paper, the process of creation and standardization of achievement test has been explained based on the content of four important concepts of educational psychology. These four important concepts of educational psychology are recommended by the National Council for Teacher Education in B.Ed. Curriculum. Teacher educators associated with teacher education will be able to use this test in their classes. This achievement test will be helpful for pupil teachers to determine their learning outcomes in educational psychology. Teacher Educators can make quick decisions and grouping by comparing students' performance on this achievement test in the classroom. Apart from this, with the help of this research paper, they will be able to create and standardize achievement tests for other subjects. This action will be helpful for them to improve their

teaching methodology. By understanding the process of construction and standardization of Achievement Test of Educational Psychology described in this research paper, other researchers will be able to create different types of achievement tests in their research fields.

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