

Original Research Article

Assessing Teacher Accountability: Development and Validation of the Teacher's Professional Accountability Scale (TPAS)

ABSTRACT

This study aims to develop and validate the Teachers' Professional Accountability Scale (TPAS), which addresses the need for a comprehensive tool to measure professional accountability among Secondary school teachers. Professional accountability, defined as the obligation of educators to adhere established standards and practices with competence and integrity, is crucial for improving educational quality and ensuring favorable student outcomes. A descriptive survey method was employed, and the TPAS was constructed and standardized through a pilot study. The scale consists of 94 items across four dimensions: procedural responsibility, consequential responsibility, instructional responsibility, and school and classroom responsibilities for student outcomes. Item analysis and selection resulted in a final draft of 74 items with satisfactory discrimination power. Reliability analysis using split-half method and Cronbach's alpha yielded coefficients of 0.85, indicating high internal consistency. Content validity was established through expert reviews, and norms were developed based on z-scores from a sample of 281 Secondary school teachers. The TPAS provides a validated measure for assessing professional accountability, contributing to the advancement of educational research and practice. The study reached some recommendations, including the commitment of the school administration and senior management to the accountability standards reached, and the provision of joint workshops to ensure the efficiency of the implementation of professional accountability standards for teachers.

No definition or term is put in the summary and where are the recommendations

Keywords: assessment of teachers; professional accountability; Secondary schools; tool construction; standardization.

1. INTRODUCTION

The concept of professional accountability has garnered substantial attention in the educational field, particularly regarding teachers' performance and responsibilities. It refers to the obligation of educators to adhere established standards and practices, ensuring that their obligations are carried out competently and with integrity. As defined by Segen's Medical Dictionary (2011), professional accountability involves comparing a worker's professional judgment and activities or behaviours to those of others. In the educational context, this means that teachers are responsible for their instructional methods, classroom management, and the student's overall outcomes.

Professional accountability plays a crucial role in improving the quality of education and ensuring that students experience a consistent, high level of instruction. It fosters transparency, encourages ongoing professional growth, and ensures that teachers are fulfilling their responsibilities effectively. Despite its significance, there is a notable absence of standardized tools to measure professional accountability among teachers. Existing tools often fail to capture the multifaceted nature of accountability in education. This gap underscores the need for a comprehensive and validated scale specifically designed to assess professional accountability in teachers.

2. The problem of the study:

The problem of research is to contribute to the work of the Teacher Professional Accountability Scale (TPAS) to develop the performance of the educational system at the secondary stage, improve the quality of education, and improve students' educational and learning outcomes, and the problem of the study is the following main question:

What is the scale of professional accountability for the teacher to improve the professional performance of the teacher, and this question branches from the following questions:

- 1- How can the professional accountability scale for teachers at the secondary stage be developed and proved?
- 2- How can teachers' performance be developed and their professional responsibilities developed in the classroom?
- 3- How can the educational output be improved and the educational achievement of secondary school students increased?

3.1 Objective of the study:

- 1- To develop and validate Teachers' Professional Accountability Scale (TPAS).
- 2- Develop teachers' performance and develop their responsibilities in the classroom or classroom environment.
- 3- Improving educational output represented by students' high grades.

4.1 The importance of the study:

- 1- Developing the professional performance of teachers according to the most urgent educational standards.
- 2- Developing the classroom performance of students within the educational classrooms.
- 3- Viewing students' academic outcomes as a top priority in the classroom and this is achieved through the professional accountability of the teacher.
- 4- Improving the educational output of students and thus the success of the school system in achieving the goals set accurately.

5.1 terms of the study:

Professional Teacher Accountability: Continuous professional learning for teachers is defined as the learning process that enables communities of practice to build knowledge of the subject, develop pedagogical skills, attitudes and beliefs. Participant accountability is defined as the conscience and responsibility that key curriculum practitioners must bear. Curriculum implementation is defined as curriculum implementation in the classroom. Communities of Practice are defined as practitioners who have the responsibility to perform professional development activities to improve their required competencies in the classroom.

5.1 Limitations of the study:

Human limits: The study is limited to secondary school teachers.

2. METHODOLOGY

2.1 Research method: Descriptive survey method was used to achieve the objective of the present study.

2.2 Pilot study: Teacher's professional accountability scale (TPAS) was constructed and standardized by the researcher.

2.3 Scoring procedure: The scale consists of a total of 94 items, having 44 positive and 50 negative statements distributed across four dimensions: 22 items pertain to procedural responsibility, 18 items to consequential responsibility, 25 items to instructional responsibility and 29 items to school and classroom responsibilities for student outcomes. Scoring for all items was conducted using a 5-point Likert scale, such as Always, Frequently, Sometimes, Rarely, and Never. The scoring is done in Table 1 as follows-

Table 1: Scoring of the scale

| Sl. No | Nature of statements | Alternatives | | | | |
|--------|----------------------|--------------|------------|-----------|--------|-------|
| | | Always | Frequently | Sometimes | Rarely | Never |
| 1 | Positive | 4 | 3 | 2 | 1 | 0 |
| 2 | Negative | 0 | 1 | 2 | 3 | 4 |

3. (DATA ANALYSIS)

3.1 Item analysis /Item selection: The following steps were followed for item analysis of the draft Teachers' Professional Accountability Scale.

- The draft of the proposed scale was applied to 150 Secondary school teachers using the scoring key, as mentioned in Table 1 and organized from the highest score to the lowest score.
- For the calculation of the discrimination power of the items, high and low-scoring groups have been formed under conditions by keeping 27% in the top and 27% in the bottom group on the basis of the total score.
- The mean scores for each individual item were computed for high scoring and low scoring groups.
- The difference between the mean scores obtained by the high scoring and low scoring groups on a particular item was determined. The difference was taken into consideration to determine the discrimination power of that particular item.
- To compare the mean scores between two groups, the 't' value for each item was calculated. The 't' value calculation has been calculated in SPSS.V. 25.
- Items with $t > 1.75$ or $t = 1.75$ were then identified and considered as eligible for the final form, while other items were excluded.
- Out of 94 items in the draft scale, 20 items were excluded and 74 items were retained. The total 28 positive items and 46 negative items were selected for the final draft of the scale. Table 2 shows the distribution of the calculated "t" value for the items in the draft Teachers' Professional Accountability Scale.

Table 2: Distribution of 't' value for draft Teachers' Professional Accountability Scale

| Sl. No | Dimensions | Item No | "t" value | Category | Results |
|--------|---|---------|-------------|----------|----------|
| 1 | Procedural responsibility Criteria should be listed here | 1 | 0.731803902 | Positive | Rejected |
| | | 2 | 5.062864182 | Negative | Accepted |
| | | 3 | 5.005585186 | Negative | Accepted |
| | | 4 | 4.234431612 | Negative | Accepted |
| | | 5 | 0.736041582 | Positive | Rejected |
| | | 6 | -0.22305771 | Positive | Rejected |
| | | 7 | 2.429786169 | Positive | Accepted |
| | | 8 | 4.223045156 | Negative | Accepted |
| | | 9 | 5.346302064 | Negative | Accepted |
| | | 10 | 1.0170428 | Positive | Rejected |
| | | 11 | 1.715803683 | Positive | Rejected |
| | | 12 | 2.25065908 | Positive | Accepted |
| | | 13 | -0.35645958 | Negative | Rejected |
| | | 14 | 6.28519103 | Negative | Accepted |

| | | | | | |
|---|--|----|-------------|----------|----------|
| | | 15 | 5.654976623 | Negative | Accepted |
| | | 16 | 2.628514963 | Positive | Accepted |
| | | 17 | 1.326217312 | Positive | Rejected |
| | | 18 | 1.565325981 | Positive | Rejected |
| | | 19 | 0.952736417 | Positive | Rejected |
| | | 20 | 3.890943617 | Positive | Accepted |
| | | 21 | 3.332266583 | Positive | Accepted |
| | | 22 | 4.39183567 | Positive | Accepted |
| | | 23 | 1.060354941 | Positive | Rejected |
| 2 | Consequential responsibility Criteria should be listed here | 24 | 5.280021317 | Negative | Accepted |
| | | 25 | 0.389305922 | Positive | Rejected |
| | | 26 | 4.726734554 | Positive | Accepted |
| | | 27 | 2.137539704 | Negative | Accepted |
| | | 28 | 1.998441218 | Positive | Accepted |
| | | 29 | 4.079653836 | Positive | Accepted |
| | | 30 | 0.963170708 | Negative | Rejected |
| | | 31 | 6.223073951 | Negative | Accepted |
| | | 32 | 2.083952289 | Positive | Accepted |
| | | 33 | 0.004299003 | Positive | Rejected |
| | | 34 | -0.69216152 | Positive | Rejected |
| | | 35 | 4.635205752 | Negative | Accepted |
| | | 36 | 7.383213564 | Negative | Accepted |
| | | 37 | 1.964914434 | Negative | Accepted |
| | | 38 | 0.557096487 | Positive | Rejected |
| | | 39 | 3.65292884 | Negative | Accepted |
| | | 40 | 5.694450016 | Negative | Accepted |
| | | 41 | 4.507223543 | Negative | Accepted |
| 3 | Instructional responsibility Criteria should be listed here | 42 | 3.167270993 | Positive | Accepted |
| | | 43 | 6.384163372 | Negative | Accepted |
| | | 44 | 6.005970829 | Negative | Accepted |
| | | 45 | 1.102561903 | Negative | Rejected |
| | | 46 | 5.092169527 | Negative | Accepted |
| | | 47 | 6.858726886 | Negative | Accepted |
| | | 48 | 4.754844175 | Positive | Accepted |
| | | 49 | -0.00530784 | Negative | Rejected |
| | | 50 | 3.502770844 | Negative | Accepted |
| | | 51 | 3.522808297 | Positive | Accepted |
| | | 52 | 6.898534069 | Negative | Accepted |
| | | 53 | 2.44276419 | Negative | Accepted |
| | | 54 | 2.95863529 | Negative | Accepted |
| | | 55 | 8.279172105 | Negative | Accepted |
| | | 56 | 5.366347669 | Negative | Accepted |
| | | 57 | 4.129950187 | Negative | Accepted |
| | | 58 | 3.151851038 | Negative | Accepted |

| | | | | | |
|---|---|----|-------------|----------|----------|
| 4 | School and Classroom responsibility for student's outcome Criteria should be listed here | 59 | 4.754447243 | Negative | Accepted |
| | | 60 | 5.531251516 | Negative | Accepted |
| | | 61 | 5.407564819 | Positive | Accepted |
| | | 62 | 3.021126611 | Positive | Accepted |
| | | 63 | 3.510277388 | Positive | Accepted |
| | | 64 | 3.261054066 | Positive | Accepted |
| | | 65 | 3.692165519 | Positive | Accepted |
| | | 66 | 2.968850567 | Negative | Accepted |
| | | 67 | 2.778326854 | Positive | Accepted |
| | | 68 | -1.61006896 | Positive | Rejected |
| | | 69 | 2.85568565 | Positive | Accepted |
| | | 70 | 6.64482809 | Negative | Accepted |
| | | 71 | 5.458312612 | Negative | Accepted |
| | | 72 | 4.166628659 | Negative | Accepted |
| | | 73 | 6.045485688 | Negative | Accepted |
| | | 74 | 2.572120765 | Negative | Accepted |
| | | 75 | 6.156233192 | Negative | Accepted |
| | | 76 | 4.056530705 | Negative | Accepted |
| | | 77 | 6.730406997 | Negative | Accepted |
| | | 78 | 5.253765992 | Positive | Accepted |
| | | 79 | 5.488917026 | Negative | Accepted |
| | | 80 | 5.012657061 | Positive | Accepted |
| | | 81 | -2.40510057 | Positive | Rejected |
| | | 82 | 4.182065939 | Positive | Accepted |
| | | 83 | 1.910623805 | Positive | Accepted |
| | | 84 | 4.784768314 | Negative | Accepted |
| | | 85 | 3.497625737 | Negative | Accepted |
| | | 86 | 4.525286963 | Positive | Accepted |
| | | 87 | 2.480780439 | Positive | Accepted |
| | | 88 | 0.766184113 | Positive | Rejected |
| | | 89 | 4.351569492 | Positive | Accepted |
| | | 90 | 5.333801595 | Positive | Accepted |
| | | 91 | 8.842363533 | Negative | Accepted |
| | | 92 | 6.405556406 | Negative | Accepted |
| | | 93 | 4.045326611 | Negative | Accepted |
| | | 94 | 4.218775676 | Negative | Accepted |

3.2 Selection and final form of TPAS: The investigator decided to select 74 items from the 94 items with satisfactory 't' values for the final draft of Teachers' Professional Accountability Scale. The distribution of items in the final form of Teachers' Professional Accountability Scale is shown in Table 3 and the maximum and minimum total score range of an individual is shown in Table 4.

Table 3: Distribution of items in the final form of Teachers' Professional Accountability Scale

| Sl. | Dimensions | No. of items | Total |
|-----|------------|--------------|-------|
|-----|------------|--------------|-------|

| <i>no</i> | | Positive | Negative | |
|-----------|--|-----------------|-----------------|-----------|
| 1 | Procedural responsibility | 6 | 7 | 13 |
| 2 | Consequential responsibility | 4 | 8 | 12 |
| 3 | Instructional responsibility | 8 | 15 | 23 |
| 4 | School and classroom responsibilities for student's outcome | 10 | 16 | 26 |
| | Total | 28 | 46 | 74 |

Table 4: Maximum and minimum individual total score range of Teachers' Professional Accountability Scale

| <i>Individual total score range</i> | <i>Positive statements</i> | <i>Negative statements</i> | <i>Total</i> |
|-------------------------------------|----------------------------|----------------------------|--------------|
| Maximum | 112 | 184 | 296 |
| Minimum | 28 | 46 | 74 |

3.2.1 Reliability: A procedure was adopted to compute the internal consistency reliability of the Teachers' Professional Accountability Scale using the split-half method. The Final draft of Teachers' Professional Accountability Scale was administered to 181 Secondary school teachers of Dhemajidistrict, Assam. The coefficient of correlation between two halves was calculated using the product moment coefficient of correlation. The reliability of the half-test was found to be 0.74. Furthermore, the Spearman-Brown Prophecy formula was applied to estimate the coefficient of reliability of the overall test, which was found to be 0.85. The reliability of Cronbach's alpha was also calculated and found to be 0.85.

3.2.2 Validity: To determine the content validity of the test, the researcher seeks expert advice on the Teachers' Professional Accountability Scale. It was given to a number of experts in the field for judgment regarding the content coverage and language. Finally, all suggestions received from the experts are incorporated to ensure their validity.

3.2.3 Norms: To estimate the standard score norms in z-score, the researcher used the following formula: $z = (X - M) / \sigma$ where, z =Sigma score or z score, X =Raw score, M =Mean of the distribution, and σ = Standard deviation of the distribution.

From the collected data, the calculated mean and standard deviation (S.D.) were found to be 192 and 54, respectively. The researcher employed z-score to determine the norms of the scale during data interpretation. Samples of 281 Secondary school teacher were taken to estimate the norms of the scale. The details of the z scores are presented below in Table 5

Table 5: z score norms for Teachers' Professional Accountability Scale Mean = 192, S.D. = 54, N =281

| <i>Raw score</i> | <i>Z score</i> | <i>Raw score</i> | <i>Z score</i> | <i>Raw score</i> | <i>Z score</i> |
|------------------|----------------|------------------|----------------|------------------|----------------|
| 59 | -2.46296 | 171 | -0.38889 | 233 | 0.759259 |
| 60 | -2.44444 | 172 | -0.37037 | 237 | 0.833333 |
| 64 | -2.37037 | 173 | -0.35185 | 238 | 0.851852 |
| 68 | -2.2963 | 174 | -0.33333 | 239 | 0.87037 |
| 70 | -2.25926 | 175 | -0.31481 | 240 | 0.888889 |
| 73 | -2.2037 | 176 | -0.2963 | 242 | 0.925926 |
| 77 | -2.12963 | 177 | -0.27778 | 244 | 0.962963 |
| 83 | -2.01852 | 178 | -0.25926 | 246 | 1 |
| 91 | -1.87037 | 179 | -0.24074 | 247 | 1.018519 |
| 93 | -1.83333 | 180 | -0.22222 | 248 | 1.037037 |
| 94 | -1.81481 | 181 | -0.2037 | 249 | 1.055556 |
| 96 | -1.77778 | 182 | -0.18519 | 250 | 1.074074 |
| 97 | -1.75926 | 183 | -0.16667 | 251 | 1.092593 |

| | | | | | |
|-----|----------|-----|----------|-----|----------|
| 98 | -1.74074 | 184 | -0.14815 | 253 | 1.12963 |
| 100 | -1.7037 | 185 | -0.12963 | 257 | 1.203704 |
| 103 | -1.64815 | 186 | -0.11111 | 258 | 1.222222 |
| 109 | -1.53704 | 187 | -0.09259 | 259 | 1.240741 |
| 110 | -1.51852 | 188 | -0.07407 | 260 | 1.259259 |
| 112 | -1.48148 | 189 | -0.05556 | 261 | 1.277778 |
| 113 | -1.46296 | 190 | -0.03704 | 262 | 1.296296 |
| 115 | -1.42593 | 191 | -0.01852 | 263 | 1.314815 |
| 116 | -1.40741 | 192 | +0.00 | 264 | 1.333333 |
| 119 | -1.35185 | 193 | 0.018519 | 265 | 1.351852 |
| 120 | -1.33333 | 197 | 0.092593 | 267 | 1.388889 |
| 123 | -1.27778 | 198 | 0.111111 | 271 | 1.462963 |
| 125 | -1.24074 | 200 | 0.148148 | 272 | 1.481481 |
| 127 | -1.2037 | 201 | 0.166667 | 279 | 1.611111 |
| 128 | -1.18519 | 204 | 0.222222 | 283 | 1.685185 |
| 129 | -1.16667 | 206 | 0.259259 | | |
| 131 | -1.12963 | 207 | 0.277778 | | |
| 135 | -1.05556 | 208 | 0.296296 | | |
| 136 | -1.03704 | 209 | 0.314815 | | |
| 137 | -1.01852 | 211 | 0.351852 | | |
| 138 | -1 | 212 | 0.37037 | | |
| 139 | -0.98148 | 213 | 0.388889 | | |
| 140 | -0.96296 | 214 | 0.407407 | | |
| 141 | -0.94444 | 215 | 0.425926 | | |
| 142 | -0.92593 | 216 | 0.444444 | | |
| 143 | -0.90741 | 217 | 0.462963 | | |
| 145 | -0.87037 | 218 | 0.481481 | | |
| 146 | -0.85185 | 219 | 0.5 | | |
| 147 | -0.83333 | 221 | 0.537037 | | |
| 148 | -0.81481 | 222 | 0.555556 | | |
| 149 | -0.7963 | 223 | 0.574074 | | |
| 151 | -0.75926 | 225 | 0.611111 | | |
| 152 | -0.74074 | 226 | 0.62963 | | |
| 155 | -0.68519 | 227 | 0.648148 | | |
| 161 | -0.57407 | 228 | 0.666667 | | |
| 162 | -0.55556 | 229 | 0.685185 | | |
| 164 | -0.51852 | 230 | 0.703704 | | |
| 169 | -0.42593 | 231 | 0.722222 | | |
| 170 | -0.40741 | 232 | 0.740741 | | |

Based on the z-score, the researcher categorizes the Teacher's Professional Accountability Scale into five (05) distinct groups to facilitate score interpretation. Table 6 provides detailed information regarding the norms for the interpretation of the scale.

Table 6: Norms for interpretation of Teacher's Professional Accountability Scale

| <i>Sl. No</i> | <i>z score</i> | <i>Range of raw score</i> | <i>Categories</i> |
|---------------|---|---------------------------|-------------------------------|
| 1 | Above +0.85σ | Above 238 | High accountability |
| 2 | +0.01 σ to +0.85 σ | 193-238 | Above Average accountability |
| 3 | -0.83 σ to + 0 σ | 147-192 | Average accountability |
| 4 | -1.6 σ to -0.85 σ | 101-146 | Below Average accountability |

| | | | |
|---|--------------------|-----------|--------------------|
| 5 | Below -1.6σ | Below 101 | Low accountability |
|---|--------------------|-----------|--------------------|

3.3 Usefulness of the study: The development and validation of the Teachers' Professional Accountability Scale (TPAS) provides a significant contribution to the assessment of teachers, professional development, policy making, comparative study, Improving school performance, teacher education, teacher evaluation and educational research and practice, And the development of the entire educational process.

4. The results of the study:

- 1- The need for teachers to possess personal and organizational normative skills in school work.
- 2- The need for teachers to have educational experience in setting the general policy of the school and managing the educational classrooms successfully.
- 3- Developing school work programs in light of the standards of accountability gained.
- 4- Accountability of professional standards for teachers helps change in a more efficient and effective way.
- 5- Teachers' satisfaction with their work after agreeing to use professional accountability standards in favor of developing students' performance within the school.
- 6- In practice, the standard scale for teachers emphasizes the confirmation of school success for secondary school students.

5. Recommendations:

- 1- The commitment of the school administration and senior management to the standards of accountability reached.
- 2- Providing joint workshops to ensure the efficient implementation of professional accountability standards for teachers.
- 3- Training teachers and others to implement the standards of professional accountability reached.
- 4- Funding professional accountability standards for teachers by the central government to ensure the quality of the educational process.
- 5- The achievement of students in educational classes depends on professional development and training through modern professional accountability.

6. CONCLUSION

The present study demonstrated a successful tool in the area of teacher assessment by developing and validating the Teachers' Professional Accountability Scale (TPAS), which consists of 74 items divided into four dimensions: procedural responsibility, consequential responsibility, instructional responsibility, and school and classroom responsibilities for student outcomes, whereas, the norm of the scale categorizes teachers into five distinct levels according to their individual scores. The high reliability and validity of the scale ensure the accuracy of measurement. In conclusion, the TPAS is a valuable tool in the field of educational measurement, providing a comprehensive and reliable means of assessing and improving professional accountability among Secondary school teachers. Its application can lead to more targeted interventions and improved educational practices, ultimately benefiting both teachers and students.

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